An Address
ON
THE OPERATION OF GASTRO-JEJUNOSTOMY AND ITS PHYSIOLOGICAL EFFECTS.

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MR. PRESIDENT AND GENTLEMEN,—When your distinguished President of last year conveyed to me a cordial invitation to be present at this meeting of the American Medical Association I accepted at once, thinking of the opportunity which I should have of seeing for myself and profiting from the work of the many in your country whose fame has spread across the sea. When, however, I came to seek for a subject on which to address you I realised the rashness of my ready compliance. So much work has been done here on that branch of surgery in which I am especially interested that I felt that were I to dwell on any purely surgical aspect of gastric disease I should be going over ground already familiar to you and so should be trespassing too far on that indulgence and leniency which I have heard you so invariably extend to those who are your guests.

In my Hunterian lectures delivered before the Royal College of Surgeons of England last year I gave the results of some investigations into the effect of the operation of gastro-jejunostomy on the metabolism of the human body. After some consideration I determined to pursue those investigations further and to lay the results before this meeting. When, as was the case but a few years back, the operation of gastro-jejunostomy was performed only as a last resort in cases of pyloric stenosis, physiological questions were a secondary consideration, but at the present time when the operation is frequently advised for conditions such as intractable gastric ulcer, in which it is an operation of expediency rather than of necessity, a knowledge of its precise effects on the gastric and metabolic functions of the body must be one of the determining factors in the decision for or against operation. It is on this aspect of gastro-jejunostomy that I propose to offer some observations for your consideration to-day.

I. THE EFFECT OF GASTRO-JEJUNOSTOMY ON THE FUNCTIONS OF THE STOMACH.

1. *The presence of bile in the stomach.*—All observers are agreed that a certain amount of bile finds its way into the stomach after the operation of gastro-jejunostomy. It is said that the quantity is at first fairly abundant but after a few weeks considerably less. In my own experience it is rare to find bile in the fasting stomach, and I regard its presence under such conditions as evidence of inefficiency of the efferent opening. The fluid drawn off one hour after a test breakfast often appears to contain bile, but Gmelin's test usually gives a negative result. If the gastric contents be tested two hours after a test meal Gmelin's test is frequently obtainable. I use the expression obtainable advisedly, for considerable care is often requisite to demonstrate the presence of bile, although from the appearance of the gastric contents one would judge that it is present in some quantity. Indeed, I believe that the amount of bile which regurgitates into the stomach is considerably overestimated. Gmelin's test does not give a positive reaction unless bile be present to the extent of about 5 per cent. and the green colour of the test is, as a rule, only just visible, and sometimes cannot be seen at all. It is probable, therefore, that the regurgitated bile forms not more than 5 or 6 per cent. of the stomach contents. I need hardly point out that if bile gains entrance into the stomach pancreatic secretion must do so as well. Granted, then, that there is a permanent reflux of bile into the stomach after gastro-jejunostomy the question arises, Is its presence harmful? All the evidence indicates that it is not, provided the efferent opening of the anastomosis is efficient. Dastre and Masré have shown that in dogs the presence of bile in the stomach does not interfere with the digestion and general health. The well-known case reported by Moynihan as well as the results of the operation of cholecysto-gastrostomy in man confirm these observations, while the metabolism experiments to which I will refer later afford further evidence to the same effect. Indeed, I think we may safely affirm that in part at least the beneficial effects of gastro-jejunostomy on gastric ulcer are due to the entrance of the alkaline pancreatic juice and bile into the stomach.

2. *The effect of gastro-jejunostomy on the gastric secretion.*—The most marked effect of gastro-jejunostomy is the diminution of the total acidity of the gastric contents which follows operation. At first sight it would appear that this diminution is but the result of partial neutralisation of the gastric contents by the bile and pancreatic juice which gain entrance into the stomach. But the problem is not such a simple one. The time at my disposal will not permit me to describe in detail the observations which I have made on this interesting subject, so I will briefly indicate what appear to me to be the chief factors at work. From an examination of a considerable number of cases I find that the average diminution of the total acidity after gastro-jejunostomy is about 35 per cent. There are several reasons which appear to me to indicate that this diminution is not due solely to partial neutralisation. First, judging by the amount of bile usually found in the stomach, the diminution is too great to be the result of a purely chemical reaction. Secondly, if the diminution were the result of a chemical reaction, we should expect all the free hydrochloric acid to be neutralised, but this is not invariably the case. In several cases I have found free hydrochloric acid present, and in those cases in which it has been present before operation it can usually be demonstrated after operation by giving a suitable test meal, such as Leube's. Thirdly, there is a diminution of the total chlorides in the gastric contents which must be the result, not of neutralisation, but of diminished secretion.

Two factors at least, therefore, appear to be at work in bringing about the diminution of total acidity which is found after gastro-jejunostomy: (1) a diminution of the total chlorides secreted; and (2) partial neutralisation of the gastric contents by bile and pancreatic juice. The brilliant researches of Pawlow and his co-workers have demonstrated the striking interdependence of the secretions of the digestive glands, and it is this interdependence which seems to me to afford us a reasonable explanation of the diminution of chlorides. We may, I think, safely assume that during the churning movements of the stomach some of the gastric juice will be, as it were, squeezed through the anastomotic opening. This escape of some of the acid will prevent the total acidity rising as high as would otherwise be the case. But it will have a further effect. The presence of an acid fluid in the jejunum causes a secretion of pancreatic juice (Wertheimer). Thus, after gastro-jejunostomy, if my hypothesis be correct, the early presence of acid in the jejunum will lead to a flow of pancreatic juice at an earlier period of digestion than in a normal individual. With this earlier stimulation of the pancreas there will be a correspondingly earlier diminution of the gastric secretion, and as a consequence of this, a diminution in the total chlorides secreted by the gastric mucous membrane. Possibly other factors are at work, such as an inhibitory effect of secretin or other constituent of the pancreatic juice, while in those cases in which there has been hyperacidity before operation the removal of the abnormal excitation of the gastric mucosa which results from spasmodic stenosis of the pylorus will lead to a considerable diminution of the total chlorides, and it is certainly significant that it is just in these cases of gastric ulcer with hyperacidity that the diminution of the total acidity of the gastric contents is most marked.

3. *The effect of gastro-jejunostomy on gastric digestion.*—Some authorities maintain that gastric digestion is lost after gastro-jejunostomy. Even if this were true it is not of such importance as would at first sight appear, for we know from the experiments of Pachon and Carvalho on dogs, from the observations made on Schlatter's celebrated case of total gastrectomy, as well as from the clinical evidence afforded by those patients who have survived complete removal of the stomach, that Nature is able to dispense with this organ. There is, perhaps, nothing more wonderful in the whole range of surgery than that human beings should not only survive the operation of total gastrectomy but should remain for years in the enjoyment of perfect health and activity. I need hardly remind you that the first surgeon to

conceive and carry out this daring project was one of your own countrymen.

Notwithstanding, however, Nature's adaptability the retention of gastric digestion undoubtedly adds to the resisting power of the individual in the struggle for existence. Personally I do not believe that loss of gastric digestion is a necessary consequence of a short circuit between the stomach and jejunum. Those who have expressed an opposite view base their conclusions on the subsequent diminution of chlorides found in the gastric contents. This argument is not conclusive, as the chlorides may be greatly diminished without the loss of gastric digestion. Further, unless atrophy of the mucous membrane is advanced owing to disease existing before operation, there is in my experience usually a progressive increase in the chlorides secreted during the digestion of a test meal. A more reliable indication of the extent of gastric digestion can be gained from an examination of the fæces. Schmidt has shown that only the gastric juice can digest *raw* connective tissue. I have on many occasions fed patients after gastro-jejunostomy on raw beef, but have never found any undigested connective tissue on microscopical examination of the fæces.

4. *The effect of gastro-jejunostomy on the motility of the stomach.*—Impairment of the motility of the stomach is a much more serious matter than impairment of its secretion, for it appears that the stomach, if its peptic power be reduced, endeavours to make up for the failure of digestive power by greater energy in moving on its contents. In these circumstances the food leaves the stomach incompletely digested, but this does not seem of serious import, for von Noorden maintains that the intestine can vicariously assume the peptic functions of the stomach. I have already pointed out that after gastro-jejunostomy some diminution of the gastric secretion occurs; if then it were the case that gastro-jejunostomy in addition impairs the motility of the stomach the usefulness of the operation would be considerably curtailed. Diverse views have been expressed on this subject. Hartmann and Soupault, Rydygier, and Rosenheim found the motility of the stomach permanently impaired; Carle and Fantino, on the other hand, maintain that the emptying of the stomach is hastened rather than retarded. It is, I think, possible that in such investigations the existence of impaired motility *before* operation has not always been excluded. Although motor insufficiency be present after operation, we cannot assume that the insufficiency is due to operation, unless we have shown the stomach to have been normal in this respect before operation.

I have now investigated the motility of the stomach before and after gastro-jejunostomy in a considerable number of cases, but I will now refer only to three typical examples. The first of these was a woman upon whom I performed gastro-jejunostomy for repeated attacks of hæmorrhage from a gastric ulcer. Examination before operation showed that on an average the stomach was empty three and a half hours after a test breakfast. Two months after operation a number of observations showed that the stomach was empty four hours after a similar test meal. You will observe that although the motility was slightly impaired by operation, the delay in evacuation did not exceed the physiological limits. This case raises the question, How does gastro-jejunostomy influence those cases of gastric ulcer in which the motility of the stomach is not impaired? I will return to this point later.

The second observation was carried out on a patient upon whom I performed gastro-jejunostomy for gastric tetany, with almost complete pyloric stenosis and greatly impaired motility. Two years after operation examination showed the stomach to be empty on two occasions four hours after a test breakfast, and on another occasion four hours after a full dinner only 25 cubic centimetres of fluid containing a trace of bile were drawn off.

Observations on a third patient showed that before operation 20 cubic centimetres of fluid remained in the stomach four hours after a test breakfast. One month after operation, at which a chronic gastric ulcer with dense adhesions to the abdominal wall was found at the cardiac end of the stomach, examination showed that on one occasion 15 cubic centimetres, and on another occasion five cubic centimetres of slightly green tenacious fluid, showing a faint Gmelin's reaction, remained in the stomach three and a half hours after a test breakfast.

From these and numerous other observations I think that we may conclude that, in those cases in which the motility is markedly impaired by pyloric stenosis or by adhesions, the operation of gastro-jejunostomy usually results in a marked improvement in the evacuation of the stomach contents. In those cases, on the other hand, in which before operation the motility is unimpaired, gastro-jejunostomy may either slightly retard or slightly hasten evacuation, but inasmuch as this retardation or acceleration falls within physiological limits, we are justified in saying that in cases in which the motility is normal before operation the evacuation of the stomach is for practical purposes unchanged by gastro-jejunostomy.

Is gastro-jejunostomy a drainage operation?—The observations on the motility of the stomach which have already been mentioned are against the view that gastro-jejunostomy is a drainage operation, and W. B. Cannon and J. B. Blake in their most invaluable article also put forward strong arguments against such a supposition. These writers too, from observations on dogs by means of the Roentgen rays, have come to the conclusion that in cases in which the pylorus is unobstructed the food continues to pass through the pylorus rather than through the new opening. Are we justified in assuming that this holds good for a human being if the anastomotic opening is made of large size? It is at least suggestive that in the only case in Cannon and Blake's series in which the food passed out through the anastomotic opening rather than through the pylorus the opening which had been made was a large one. This observation appears to me to be a most important one. It emphasises the necessity for a large anastomotic opening, which is in my judgment the most important point in the technique of gastro-jejunostomy.

To what are the beneficial effects of gastro-jejunostomy on gastric ulcer due?—Most writers have assumed that gastro-jejunostomy is a drainage operation and have attributed the beneficial effects of the operation on gastric ulcer to hastened evacuation of the stomach. If this be true it follows that in those cases of gastric ulcer in which motility of the stomach is normal the operation of gastro-jejunostomy would be of little or no avail. This has not been my experience. I have already told you of a case in which the motility was slightly impaired after operation. Notwithstanding this impairment the patient rapidly improved, lost all her gastric symptoms, and has remained ever since in excellent health. Indeed, some of the most striking successes I have witnessed have been in cases in which before operation there was no evidence of delayed evacuation of the stomach. We must, therefore, I think, look for some other factor than drainage to explain the influence of gastro-jejunostomy on gastric ulcer. There is a general agreement that hyperacidity is the factor which prevents healing of a gastric ulcer. After gastro-jejunostomy there is a marked diminution of the total acidity of the gastric contents, which diminution does not depend on improved evacuation. Are we not justified in assuming that it is to this diminution of the gastric acidity that the beneficial effects of gastro-jejunostomy on gastric ulcer are due?

II. THE EFFECT OF GASTRO-JEJUNOSTOMY ON THE METABOLISM OF THE HUMAN BODY.

In the year 1897 Jöslin published observations on the metabolism of two patients upon whom gastro jejunostomy had been performed. He maintained that as the result of this operation there is a marked diminution of the proportion of nitrogen absorbed from the food and an even more marked diminution in the fat absorption. These conclusions have been accepted without question. In my book on Gastric Surgery published last year I gave details of observations on four patients in whom the absorption of fat and nitrogen was practically unaffected. There are still writers who dilate on the evil consequences of this operation and of the interference with the physiology of digestion which it entails. Two years ago a distinguished surgeon wrote: "It is improbable that so much interference with the anatomy and physiology of digestion as this operation involves can be tolerated without some ill effects." As recently as six months ago another writer remarked: "The interference with the physiology of digestion which such an operation entails is not well tolerated." He then pointed out the necessity for the existence of the acid medium of the stomach with its pepsin for the digestion of the fat cells and starch granules. I have already pointed out to you the evidence that connective tissue digestion continues after gastro-jejunostomy and I will now endeavour to prove to you from the further observations which I have made that these hypotheses

about interference with the nutrition of the body are unsupported by chemical pathology or clinical experience. Indeed, it was the remarkable evidence I obtained in investigating the remote history of a large number of patients upon whom gastro-jejunostomy had been performed which led me to doubt the accuracy of Jöslin's conclusions and to test their correctness by the touchstone of direct experiment.

My first observation was carried out on a man, aged 26 years, five months after I had performed anterior gastro-jejunostomy for gastric ulcer. During the four days which the observation lasted the patient absorbed 91 per cent. of the nitrogen taken in his food and 92·3 per cent. of the fat. Now in a series of metabolism experiments on 75 apparently healthy individuals on a mixed diet, Harley and Goodbody found that the highest nitrogen absorption amounted to 97·07 per cent. and the lowest to 90·1 per cent. of the nitrogen taken in the food, the average absorption being 93·46 per cent. of the nitrogen taken in the food. As regards fats, Harley and Goodbody found that the highest absorption amounted to 98·5 per cent. and the lowest to 90·19 per cent. of the fat taken in the food, the average absorption of 79 observations being 95·05 per cent. If you will compare the results of my observations after gastro-jejunostomy you will see that the nitrogen absorption is 2·4 only below the average and the fat absorption 2·7 below the average, and both nitrogen and fat absorption are higher than the lowest absorption found in a healthy individual. My second observation, also on a mixed diet, seven months after gastro-jejunostomy and suture of a perforated gastric ulcer, showed a nitrogen absorption of 90·5 per cent. and a fat absorption of 92·5 per cent. Comparing these figures with those which I have quoted from Harley and Goodbody you will observe that the nitrogen absorption is 2·9 and the fat absorption 2·5 below the average, but both nitrogen and fat absorption are above the lowest percentages found in healthy individuals. My third observation was likewise made on a mixed diet on a patient two years after gastro-jejunostomy for gastric tetany, and I may mention for the interest of those who regard the functions of the duodenum with reverence, that there existed complete obstruction of the pylorus, so that the food could pass only through the anastomotic opening. During four days on a liberal mixed diet (40 calories for each kilogramme body weight) the patient absorbed 92·1 per cent. of the nitrogen taken in the food and 92·7 per cent. of the fat. In other words, the nitrogen absorption was 1·3 and the fat absorption 2·3 below the average, both nitrogen and fat absorption being above the lowest absorption found in healthy individuals. My fourth observation was carried out on a milk diet on a patient two months after gastro-jejunostomy for gastric ulcer. The nitrogen absorption amounted to 92·7 per cent. of the nitrogen in the milk taken and the fat absorption 94·7 per cent. Compared with the average absorption of a healthy person on a milk diet, these figures show a diminished nitrogen absorption of 1·5, and a diminished fat absorption of 1·4, both nitrogen and fat absorption being higher than the lowest percentage absorption found in a normal individual. My fifth observation was made on a mixed diet on a patient one month after gastro-jejunostomy for pyloric stenosis. In this instance 92·4 per cent. of the nitrogen and 93·5 per cent. of the fat taken in the food was absorbed, the figures being respectively 1·0 and 1·5 below the average, but both well above the lowest normal absorption.

The preceding observations were made on patients on whom anterior gastro-jejunostomy had been performed; the remaining four observations were carried out on patients upon whom I had performed the posterior no-loop method. The sixth observation was carried out on a milk diet one month after gastro-jejunostomy for gastric ulcer. The nitrogen absorption was 91 2 per cent. and the fat absorption 92·3 per cent. of the fat taken in the food—that is, the nitrogen absorption was 3·0 and the fat absorption 3·8 below the average. The seventh observation was made, also on a milk diet, on a patient upon whom I had performed gastro-jejunostomy for duodenal ulcer with partial stenosis. The nitrogen absorption was 92 2 per cent. and the fat absorption 95·4 per cent.—that is, the nitrogen absorption was 2·0 and the fat absorption 0·7 below the average absorption on a milk diet in a healthy individual. My eighth observation was made on a patient upon whom I had performed gastro-jejunostomy for gastric ulcer. The patient was placed on a milk diet and the observation lasted seven days. During this period the man absorbed 93 5 per cent. of the nitrogen, and 94·1 per cent. of the fat taken in the food. In this case the nitrogen absorption was 0 9, and the fat absorption 0·9 below the average. My ninth observation was made on a milk diet on a patient 24 days after gastro-jejunostomy for gastric ulcer. In this patient 92·4 per cent. of the nitrogen and 96·8 per cent. of the fat taken in the food were absorbed; a diminution of 1·8 in the case of the nitrogen, and in the case of the fat an increase of 0·7 above the average.

Taking the whole series of nine observations the average diminution of nitrogen absorption is 1·7 and the average diminution of fat absorption is 1·9, while in every instance the variation is within the limits found in individuals who are in good health. It may be urged that in those cases of this series in which there was no pyloric stenosis, the food passed out through the pylorus rather than through the anastomotic opening. If this be true, although I am not prepared to admit it, it does not affect the conclusions to be drawn from the observations. We know clinically that gastro-jejunostomy has a very beneficial effect on gastric ulcer. This effect is probably due to the diminution of the acidity of the gastric contents which the operation brings about. Which route is taken by the food is a matter of academic interest, as it does not affect the therapeutic value of the operation. The important point is that the short circuit does not appreciably affect the metabolism, whether the pylorus be patent or not, for you will observe that in those patients who have marked pyloric stenosis the absorption after operation is as good as in those in whom the pylorus is patent.

It is interesting to look back and observe how incomplete knowledge leads to the formation of erroneous hypotheses and how as knowledge progresses facts apparently irreconcileable become reconcileable. Pawlow showed that the injection of acid into the duodenum causes a flow of pancreatic juice and that the acid chyme passing through the pylorus acts in the duodenum as the normal stimulus of the pancreatic gland. Since after gastro-jejunostomy the food passes directly into the jejunum, it was urged that after this operation the normal stimulus of the pancreas is absent, with the result that there is a diminished flow of pancreatic juice and consequently a serious impairment of fat absorption. Now Wertheimer has shown that the flow of pancreatic juice can be excited by the introduction of acid into the jejunum, and more recently Bayliss and Starling have demonstrated that the stimulus is not a reflex one but due to a substance which they call secretin, which is conveyed to the pancreatic gland through the blood stream. Therefore, both the hypotheses as to diminished fat absorption and as to the cause of this supposed diminution are now shown to be erroneous. The physiological and chemico-physiological facts as we know them agree, for I hope that I have been able to prove that the digestion and metabolism of the human body are practically unaffected by the operation of gastro-jejunostomy, while the researches of Wertheimer and Bayliss and Starling tell us why the alteration of the route taken by the chyme does not prevent adequate stimulation of the pancreatic gland. Is it not a striking example of the wonderful power which Nature possesses of adapting herself to the altered conditions brought about by surgical intervention?

These chemico-pathological observations are supported by the evidence of clinical experience. May I remind you of one striking fact? As I have pointed out elsewhere, there are at the present time children alive and in perfect health upon whom this operation was performed in early infancy. It is inconceivable that they would have lived for six or seven years and developed into strong healthy children had the operation the harmful effects which have been attributed to it. Lastly, let me say this. Just because gastro-jejunostomy is not in itself harmful there is a danger that we may be tempted to resort to it in doubtful cases in the hope that good may come. Great as is my respect for gastro-jejunostomy, I am no advocate of such a course. To operate for subjective symptoms in the absence of definite clinical and chemical signs is to say the least unscientific. Above all, we must guard against the failure and discredit which result from operation on neurasthenics and on those patients who, as Dr. W. J. Mayo so pithily puts it, "have had their moveable organs fixed, and their removeable ones removed." Such persons as we all know, are often only too ready to tempt fortune further at the shrine of surgery. Neither gastro-jejunostomy nor any

other surgical procedure short of the removal of the higher centres of their brains will cure such of their ills.

To sum up, we are, I think, justified in drawing the following conclusions as to the physiological effects of gastro-jejunostomy:—1. A certain amount of bile and pancreatic juice enters the stomach after gastro-jejunostomy but the amount is small and has no injurious effect. 2. The acidity of the gastric contents is markedly diminished, usually about 30 or 35 per cent. This is due, partly to a diminution of the total chlorides secreted, partly to the partial or complete neutralisation of the free hydrochloric acid by the alkaline bile and pancreatic juice, and probably also to earlier stimulation of the pancreatic secretion, and compensatory earlier fall of the gastric secretion. In gastric ulcer cases the removal of spasmodic stenosis of the pylorus likewise tends to diminish the total acidity. 3. Gastric digestion is impaired but not lost after gastro-jejunostomy. 4. The motility of the stomach, if normal before operation, is for practical purposes unaffected. Gastro-jejunostomy is therefore not a drainage operation. Its beneficial effects on gastric ulcer are due to the diminution of the acidity of the gastric contents. 5. Gastro-jejunostomy has no material effect on the metabolism of the human body, the percentage of nitrogen and fat absorbed being within the limits observed in individuals who are apparently healthy. This chemico-pathological evidence is supported by the evidence of clinical experience.

The technique and statistics of gastro-jejunostomy I do not propose to discuss. They have been recently fully dealt with in addresses delivered before this association. If you will allow, I should, however, like to bring to your notice two time-saving devices which I have found of great value. The first is this set of suture reels. Each reel is of a different length so that each size of silk or thread can be wound on a different sized reel; thus the surgeon is able to see at a glance without examination of the suture material which size of ligature he requires during the course of the operation. The other device is this pattern of needle, which may be called a "grip-eyed" needle. It is designed to obviate the inconvenience and delay caused by the accidental unthreading of needles during suturing, and is especially adapted for continuous suturing. By pulling the suture firmly into the extremity of the eye furthest from the point the thread is firmly gripped so that it cannot slip out.

In conclusion, it is my pleasant duty to thank you one and all most cordially for the honour you have done me in inviting me to address this meeting of your association. Conscious as I am of the fragmentary nature of my remarks, I would remind you that just as "nature exists in leasts" so the science of medicine has been built up by the accumulation of little facts. I venture to think that the dry bones of the observations which I have put before you are in reality clothed with the interest of practical importance in the surgery of the stomach. Be that as it may, this at least I hope, that such visits as mine serve as an evidence of that good fellowship which should, and I believe does, exist between members of our profession in the old world and in the new. Although separated by the sea we are united in the brotherhood of our common art. May we each glory in the share the other takes in its advancement. Let us say, as Marcus Aurelius said of old, "what matter by whom the good is done." And here may I pay a tribute to those in your country, some of whom now no longer speak to us, who have played so great a part in the progress of gastric and intestinal surgery. To mention only a few of these, the work of Halsted and Cushing on intestinal suturing, the work of Murphy on intestinal anastomosis, and the brilliant results of the Mayos, Oschner, Deaver, Finney, and others are landmarks in the history of the surgery of the stomach. And let us not forget the early work of Senn, the father of intestinal surgery, and of O'Connor, whose conception and intrepid execution of the first total gastrectomy gave a powerful stimulus to gastric surgery. All honour to these early American pioneers. Let us strive to follow in their footsteps.

"Science moves but slowly, slowly, creeping on from point to point,
Men my brothers, men the workers, forward, forward let us range."

The science and art of surgery are incomplete and incompletable. We are aiming for a goal which we may never reach; but, as your great writer Emerson says, "The persuasion that we must search that which we do not know, will render us beyond comparison, better, braver, and more industrious, than if we thought it impossible to discover that we do not know, and useless to search for it."

RELATION OF POLYMASTIA TO MULTIPAROUS BIRTH.[1]

BY DR. TEIZO IWAI,

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IT is a general truth that the number of offspring in mammalia usually corresponds to the number of nipples. Horses and sheep having a single pair of nipples commonly have but a single offspring, while pigs, having five or six pairs, bear from six to 12 offspring at one birth. Dr. Ch. Ishikawa (professor of zoology, Tokyo Imperial University) told me that Mr. Graham Bell, the inventor of the telephone, noticed once while keeping sheep that some of them had more than one offspring, and that the same ones again gave multiparous birth at the next period of parturition. So he set them aside for breeding. Later, as he found that these sheep had supernumerary nipples, he began to set aside all the sheep with the supernumerary nipples for breeding, and he was very successful in his experiment. These facts seem to support the old saying that those who have supernumerary glands bear twins or triplets. Many European scholars, however, do not agree with this. Dr. R. Bonnet said that although he had no opinion of his own in regard to the relation of polymastia to multiparous birth based upon sufficient evidence, yet according to Dr. Leichtenstern out of 70 women who were subjects of polymastia there were only three who gave birth to twins. Dr. R. Wiedersheim, upholding the opinions of various scholars that polymastia is not associated with twin-birth, cited also the example above-mentioned.

According to Wappäus, Meckel, Veit, Hildebrand, Konrad, Ruppin, and others, however, the proportion of twin births in Europe, although it varies according to different writers, is, roughly speaking, 1·37 per cent. If this is the case, what Dr. Bonnet cited, three cases of twins out of 70 women subjects of polymastia as proving that there is no relation between polymastia and twins, goes to verify exactly the opposite of what he intended. That is, three cases out of 70 is 4·28 per cent., or more than three times the ratio of twins among ordinary women. I can add to this another example given by Dr. Hansemann, that of a woman who had supernumerary mammary glands and who became pregnant 17 times, twice giving birth to twins. Dr. Hugo Goldberger states that he had observed the case of a woman, 32 years of age, having one supernumerary gland in each axilla, who gave birth five times, the last of which was a case of the abortion of twins in the sixth month.

I have not yet had an opportunity of gathering the statistics of twins in this country. I have, however, applied once to Mr. N. Hanabusa, Chief of the Bureau of Statistics, to be provided with such statistics, but have been informed by him that owing to the incomplete state of our present census satisfactory statistics relative to twin-births have not yet been completed. I am therefore obliged to mention in the following table only those facts which I have been enabled myself to gather up to the present.

Observers	Cases of parturitions.	Cases of twins.	Per-centage.	Cases of triplets.	Per-centage.
Dr. S. Kinoshita and Dr. K. Morimune.	1728	21	1·21	1	0·05
Dr. E. Omori.	523	3	0·57	—	—
Dr. K. Arai.	150	1	0·66	—	—
Mrs. N. Iwasaki (a midwife).	1092	4	0·36	—	—
Miss T. Hisajima (a midwife).	539	3	0·55	—	—
Mrs. K. Yoshino (a midwife).	787	6	0·76	1	0·12
Miss I. Yabe (a midwife).	263	4	1·52	—	—
Total	5082	42	0·82	2	0·03

Putting the above seven returns together we have the average of 0·82 per cent., which is 0·55 per cent. less than the ratio of twins in Europe (1·37 per cent.). Though I am not

[1] See THE LANCET, Sept. 14th, 1907, p. 753.

able to give from these small figures the general average of twins in this country, yet I am inclined to believe that the ratio of multiparous birth in this country is far below that in Europe.

While I was looking for an opportunity to make further investigation upon this subject I heard unexpectedly in June, 1901, that Mrs. M—— M——, 36 years of age, who lived in Hama-cho, Tokyo, had had twins in the year 1900 and then triplets the year following. Upon examination I found, as I expected, one supernumerary gland on the anterior wall of each axilla, and upon squeezing I obtained milk from both of them. Ever since then I have been earnestly studying multiparous birth, and up to the present time, directly or indirectly, 24 cases have come under my observation, including twins, triplets, quadruplets, quintuplets, &c. Out of these 24 cases 16 had supernumerary glands and the remaining eight not, showing the ratio of 66 66 of polymastia among 100 cases of multiparous birth. Again, out of 11 cases of the total number who had twins nine were subjects of polymastia (81·81 per cent.), and out of the remaining 13 cases who had triplets, quadruplets, and quintuplets seven were subjects of polymastia (53·84 per cent.).

By these facts, and also those which I am going to mention hereafter, I was finally enabled to prove that those who are subjects of polymastia have a tendency to become more frequently pregnant than those who have not. From my own observation, out of 85 women who are subjects of polymastia and had passed more than ten months after marriage I obtained the following results: Those who were already pregnant, 71 (i.e., 83·52 per cent.); and those who are not yet pregnant, 14 (i.e., 16·47 per cent.). Again, from my own observations in the gynæcological department of the Japan Red Cross Hospital, 1905–06, I obtained, out of 727 women who were subjects of polymastia and had passed more than ten months after the marriage, the following: Those who were already pregnant, 523 (i.e., 71·93 per cent.); and those who are not yet pregnant, 204 (i.e., 28·06 per cent.). Having these figures in view we should be able to form an estimate of how much more frequently those who have supernumerary glands become pregnant.

In an article written by Dr. M. Ogata, the director of Ogata Gynæcological Hospital, Osaka, on the Mamma of the Japanese Women,[2] we find the following item as to the relation of polymastia to pregnancy: "Out of 13 married women having polymastia we have: Those who were already pregnant, 12 (i.e., 92·30 per cent.); those who are not yet pregnant, 1 (i.e., 7·70 per cent). Out of the married women not being subjects of polymastia we have: Those who were already pregnant, 55·90 per cent.; those who are not yet pregnant, 37 90 per cent.; those who had abortion, 6·20 per cent. Judging from the above figures, it seems that those who have supernumerary mammary glands or nipples are more likely to become pregnant." Moreover, out of 101 married women who had supernumerary glands, I myself met with 18 cases of multiparous births—i.e., 17·82 per cent. This is, however, the result I obtained upon examining the subject of polymastia from the point of view of multiparous birth, and can therefore not be taken as the ratio existing between polymastia and multiparous birth in general. In this country where the cases of multiparous birth are comparatively few, the fact that they are found more frequently among those who are subjects of polymastia is a sufficient proof that there is a relation between them, and although this subject still remains one of controversy among scientific men, I do not hesitate, from my own observation, to assert that such is the case. The following is the description of the cases I have met with:—

CASE 1.—Mrs. T—— F——, 35 years of age. In November, 1901, she gave birth to quintuplets. Having had previously eight children these made in all 13. Upon examination I found one supernumerary gland on the anterior walls of both right and left axillæ. The one on the right was considerably developed. On squeezing, both were found to secrete thin milk.

CASE 2.—Mrs. K—— O——, 37 years of age. In June, 1903, she had quadruplets, and previously three children making in all seven. Upon examination no trace of polymastia could be found.

CASE 3.—Mrs. M—— M——, 36 years of age. In June, 1901, she had triplets, twins the preceding year, and five children previous to that, making in all ten children. Upon examination I found one supernumerary nipple on the anterior wall of either axilla, and by squeezing obtained the secretion of milk.

CASE 4.—Mrs. H—— K——, 32 years of age. In July, 1901, she had triplets, and previously five children, making in all eight. Upon examination I found one supernumerary gland on the anterior wall of either axilla, one upon the left mamma, one on the underside of the right mamma, and one in the right axilla, making in all five supernumerary glands. From the one upon the left mamma and the one on the anterior wall of the right axilla milk could be obtained by squeezing.

CASE 5.—Mrs. O—— Y——, 26 years of age. In August, 1903, she had triplets for the first time. Upon examination one supernumerary gland was found on the anterior wall of the left axilla, but no secretion could be obtained by squeezing.

CASE 6.—Mrs. T—— K——, 27 years of age. In March, 1902, she had triplets, and previously four children, making in all seven. Upon examination I found under the skin of the anterior wall of the left axilla a gland of the size of a small pea (1½ centimetres above and external to the normal breast). At the corresponding place on the right a faint trace of the same thing was visible.

CASE 7.—Mrs. H—— O——, 39 years of age. In June, 1902, she had triplets, and previously six children (six times prematurely born), making nine in all. Upon examination I found four distinct glands—one on the anterior wall of the left axilla, one in the left axilla itself, and two on the anterior wall of the right axilla. The bunch of glands could be felt under the skin but no secretion could be obtained by squeezing.

CASE 8.—Mrs. S——, 33 years of age. In November, 1901, she had triplets, and previously two children, making in all five. Upon examination I found one supernumerary gland of one-half the size of a grain of rice on each side of the linea alba, three and a half centimetres from it and about two centimetres below the lower edge of the rib. (As I was unable to examine this case personally I mentioned it to Dr. M. Imai, the director of Nagano Hospital, who sent his assistant to examine the subject and obtained the above report.)

CASE 9.—Mrs. M—— O——, 30 years of age. In June, 1906, she had triplets, and previously four children, making in all seven. Upon examination I found a flat and hard bunch of the size of an egg under the skin of the left axilla. She had never felt its existence until two or three days before the parturition. Judging from its form I considered it to be a ductless mammary gland under the skin. She informed me, moreover, one month after parturition that the said bunch had entirely atrophied.

CASE 10.—Mrs. S—— M——, 29 years of age. In March, 1902, at the seventh month, triplets were born to her dead; she had previously to that six children, making in all nine. Upon examination no trace of polymastia could be found. (This, again, I was unable to examine personally, so I asked Dr. K. Mizuno the medical man in attendance, through my friend Dr. T. Hayashi who happened to be in Tokyo from that district, and obtained the above report.)

CASE 11.—Mrs. T—— A——, 27 years of age. In April, 1902, seven years after her marriage, she gave birth to triplets. Upon examination no trace of polymastia was found in her.

CASE 12.—Mrs. T—— K——, 36 years of age. In September, 1901, she had triplets, and previously five children, making in all eight. Upon examination no trace of polymastia was found.

CASE 13.—Mrs K—— K——, 31 years of age. In August, 1903, she had triplets, and previously three children, making in all six. Upon examination no trace of polymastia could be found.

CASE 14.—Mrs. Y—— A——, 30 years of age. In March, 1902, she had twins, and previously three children, making in all five. Upon examination one supernumerary gland was found in the left axilla and two each on the anterior wall of each axilla. The secretion of milk was obtained from two of those on the left and from one on the right.

CASE 15.—Mrs. I—— H——, 39 years of age. In December, 1901, she had twins, and previously eight children, making in all ten. Upon examination there was an indistinct supernumerary gland on the anterior wall of the left axilla and a prominent one at the corresponding place on the right.

CASE 16.—Mrs. N—— A——, 37 years of age. In May, 1902, she had twins, and previously four children, making in all six. Upon examination one supernumerary gland was found on the anterior wall of each axilla; they were dark in colour, and even after four months, by squeezing, I could obtain thin milk from them.

CASE 17.—Mrs. K—— K——, 22 years of age. Soon after she married J——, a younger brother of Mrs. N—— A—— (mentioned in Case 16), she had two children, and in May, 1902, she gave birth to twins, but after parturition both the mother and the twins died. I found upon examination that the father of these twins has a remarkable supernumerary gland on the anterior wall of the right axilla. Upon examination of Mrs. M—— K—— (57 years of age), the mother of Mrs. N—— A—— and J——, I found one supernumerary gland on the anterior wall of the right axilla. From this it is clear that the condition of polymastia in Mrs. N—— A—— and J—— is one inherited from their mother, while the multiparous birth in Mrs K—— K—— is probably to be sought for in the polymastia of her husband J—— and in his mother M—— who herself had the pretty large number of eight children.

CASE 18.—Mrs. S—— K——, 26 years of age. In June, 1901, she had twins. When she was a nurse in the Red Cross Hospital (November, 1894), I found that she had one supernumerary gland on the anterior wall of each axilla, and after she was married I heard that she had twins.

CASE 19.—Mrs. T—— Y——, 36 years of age. In July, 1898, she had twins, and previously four children, making in all six. Upon examination there was a trace of a supernumerary gland on the anterior wall of the left axilla, but nothing was found on the right. (This case was observed by Dr. K. Aoki of Atsugi, Kanagawa-ken, and was reported to me.)

CASE 20.—Mrs. H—— A——, 32 years of age. In 1903 she had twins, and previously three children, making in all five. Upon examination a remarkable condition was found of supernumerary glands on the anterior wall of each axilla, 13½ centimetres distant from the normal mammæ.

CASE 21.—Mrs. S——, 43 years of age. In July, 1905, at the fifth month, twins were born to her dead; she had previously to that five children, making in all seven. Upon examination I found one supernumerary gland on the anterior wall of the right axilla, nine centimetres distant from the normal mamma.

CASE 22.—Mrs. S—— N——, 43 years of age. She gave birth to twins in 1884 when she was 24 years of age; she had previously two children, making in all four. Upon examination no trace of polymastia could be found.

CASE 23.—In April, 1902, after my communication on polymastia at the first meeting of the Japanese Union Medical Society, Dr. S. Shishido, of Kariya, Mikawa, told me of the following case: "There

[2] Guide to Midwifery, No. 65, October, 1901.

is a woman in my vicinity who has supernumerary glands and had twins three or four years ago. She is really blessed with children, having ten in number, though she is but 35 years of age."

CASE 24.—Mrs I—— Y——, 25 years of age. She gave birth to twins in 1900 when she was 22 years of age; before and after that time she had three children, making in all five. Upon examination no trace of polymastia could be found.

The weight, the height, and the circumference of head of the children mentioned in the above cases, so far as obtainable by me, are given in the following table:—

—	Order of birth.	Weight (kilogramme).	Height (cm.).	Circumference of head (cm.).	Remarks.
Case 1. Quintuplets.	1. Male.	1·125	36·4	25·8	Taken by Dr. M. Sato and Dr. K. Sato; the date is unknown but having died four days after their birth this must have been taken within these four days.
	2. Female.	1·125	34·9	26·1	
	3. Male.	1·575	38·2	27·2	
	4. Female.	1·387	37·8	26·4	
	5. Male.	1·347	36·4	27·2	
Case 2. Triplets.	1. Male.	2·300	43·0	31·0	Taken by Dr. K. Kusada four days after their birth.
	2. Female.	2·000	41·0	29·0	
	3. Male.	1·550	40·0	28·0	
Case 3. Triplets.	1. Male.	1·700	42·0	30·5	Taken by Dr. T. Iwai 13 days after their birth.
	2. Male.	2·000	46·0	31·5	
	3. Male.	2·300	46·0	33·0	
Case 5. Triplets.	1. Male.	1·980	47·0	31·0	Taken by Dr. T. Iwai six days after their birth.
	2. Male.	1·750	43·0	30·5	
	3. Male.	1·640	44·0	29·5	
Case 9. Triplets.	1. Female.	1·250	35·0	28·0	Taken by Dr. T. Iwai five days after their birth.
	2. Female.	*	*	*	
	3. Female.	1·480	38·0	28·0	

* Unable to examine, as the child died on the fourth day after birth.

Referring to the 17 children mentioned in the above table the lightest weight is 1125 grammes, as found in the second (female) child of Case 1, and the heaviest is 2300 grammes, as found in the third (male) child of Case 3 (taken, however, 13 days after his birth). The average weight is 1656 grammes. When we compare this figure with that of the average weight of the ordinary newly-born Japanese children—i.e., 2780 grammes—as taken by Dr. T. Miwa, the professor of the Medical College of Chiba, we find between them the difference of 1124 grammes. This will sufficiently show how incomplete is the development of the children of multiparous birth.

It is especially interesting to note the connexion between blood relation and multiparous birth, as, for example, in Cases 16 and 17, a woman and her younger brother's wife had twins in the same month of the same year; in Case 22 we find that Mr. N——'s aunt and her daughter (namely, his cousin) had twins; in Case 1 I found that the cousin and the cousin's daughter had twins alike. And in Case 3 only I found multiparous birth repeated in one and the same person. I have also noticed several cases of inheritance of polymastia, which I have already discussed in my essay, "A Statistical Study on the Polymastia of the Japanese."[3]

In the cases mentioned above we find that the youngest woman was 22 years of age and the majority of them were over 30 years and with the exception of Cases 5, 11, and 18 all had gone through labour several times. Thus, multiparous birth is found generally in women who had previously several children. This fact seems to coincide with Dr. Rump's opinion, that "the instances of the multiparous birth generally increase in women of advanced age, and in those who have gone through labour several times."

According to my observation those who have had more than triplets at a time are found among people who live very poorly, and also in their disposition, with the exception of one or two cases, seem to have certain features in common. They are generally of a mild temper and possessed of rather dull sexual passion; they are rather fleshy, and are commonly members of large families. This is in accordance with a popular saying that "poor people have a large number of children." Although I am aware that such minor points have no direct scientific bearing upon the subject under discussion I simply mention them in passing, having noticed them in my investigation of numerous cases.

[3] THE LANCET, Sept. 14th, 1907, p. 756.

CONCLUSION.

1. It is probable that there is a relation between polymastia and multiparous birth.

2. It is probable that those who have supernumerary mammary glands have a tendency to become more frequently pregnant than those who have not.

3. The fact that the instances of multiparous birth increase in women with the number of their conceptions and the development of their age coincides well with the opinions given hitherto by several eminent scholars.

4. According to my own observation the instances of multiparous birth are found more among people of the lower class, and especially among those of a low order of intelligence.

An alphabetical list of works concerning the study of the relation between polymastia and multiparous birth.—American Magazine Supplement to Heart's Chicago American, Chicago, Oct. 13th, 1901. Bonnet, R.: Die Mammaorgane im Lichte der Ontogenie und Phylogenie (Markel und Bonnet's "Ergebnisse der Anatomie und Entwickelungsgeschichte," 1892, SS. 607–657. Eulenburg: Real-Encyclopädie der Gesammten Heilkunde, Band xix., S. 291. Goldberger, H.: Ein Seltener Fall von Polymastie (Archiv für Gynäkologie 1895, Band xlix., S. 272. Hansemann, D.: Polymastie (Verhandlungen der Berliner Gesellschaft für Anthropologie, 1889, S. 434). Iwai, T.: Zur Hyperthelie (Mittheilungen der Medicinischen Gesellschaft zu Tokyo Juli, 1900, Band xiv., No. 12); Beziehung zwischen Mehrfacher Geburt und überzähliger Brust (ibid., Juli, 1901, Band xv., No. 14); Noch einmal über die Beziehung zwischen Mehrfacher Geburt und überzähliger Brust (ibid., September, 1901, Band xv., No. 18). Ogata, M.: Guide to Midwifery, October, 1901, No. 65, Shishido, S.: Mentioned in the report of the first annual meeting of the Japanese Union Medical Society, October, 1902. Wiedersheim, R.: Das Bau des Menschen als Zeugnis für seine Vergangenheit, 3 Auflage, Freiburg im Bayern und Leipzig, 1902. Winckel: Handbuch der Geburtshülfe, I. Band.

MUCOUS COLITIS.*

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MANY papers dealing with mucous colitis have recently appeared both on the continent and in England, and a careful perusal of the literature shows that the various authors hold views of a most diverse nature with regard to this interesting disease. There is hardly a disease known which has been favoured by so many different names. Thus it has been called by the several authors of papers on the subject membranous colitis, colica mucosa, muco-membranous entero-colitis, mucous colitis, enteritis membranacea, glairy enteritis, mucous colic, tubular diarrhœa, glutinous diarrhœa, intestinal croup, &c. Perhaps of these mucous colitis is the best term. Although this disease is not characterised by any active inflammatory process in the colon, yet there seems to be an over-activity of the mucous cells in the lining of the large intestine associated with in some parts atony, and in other parts spasticity, of the muscular coats of the colon. Moreover, the chief characteristic of the disease is the passage of mucus which has peculiar properties of its own, and although the mucus casts may closely resemble membranes on a cursory examination, yet they are not really membranes, and therefore the term "membranous" is certainly misleading and should only be applied to cases in which true membrane is passed.

On perusing some of the recent dissertations on the subject one cannot help thinking that the great diversity of opinion, alike with regard to the etiology, symptoms, pathology, and treatment, arises from errors in diagnosis, and that many of the cases, described as mucous colitis, are not really true cases of the disease we are considering but are rather cases in which mucus is passed from the bowel as a result of some definite inflammatory condition of the colon or of the irritation caused by a growth in the large intestine. In my selection of cases I have been careful to exclude all those patients who have shown signs of ulceration of the colon, or of any other local condition, which may have given rise to symptoms closely resembling those which I shall describe later, and so the total number of cases is not large. Still, as mucous colitis is not a common disease, valuable conclusions may be drawn from a careful study of the 25 cases. Mucous colitis may be defined as a combined secretory and motor neurosis of the large intestine associated with abdominal pain which is of two kinds: a more or less constant aching pain felt chiefly in the lower part of the abdomen

* Thesis for the M.D. degree of the University of Cambridge

and a paroxysmal colicky pain immediately preceding, and always relieved by, defæcation.

The etiology of the disease is somewhat doubtful but many important factors can be adduced to show that mucous colitis is rather due to a disease of the nervous system than to a local condition of the colon. It is certainly found more commonly in the upper and middle classes than amongst the poor. In this connexion I may add that the records of all the patients treated in the London Hospital for the past five years have been carefully looked through, and only 20 cases have been collected, and of these 20 cases many were patients of independent means. Mucous colitis occurs much more commonly in females than in males; my own cases show that 72 per cent. were females. Other writers such as Hale White[1] found 85 per cent. of his cases were females, whereas Nothnagel,[2] von Noorden,[3] and others state the percentage as 70 to 80. It is a disease which first makes its appearance in early adult life; thus to analyse the cases before us:—Between the ages of 10 and 20 years, 4 cases; between 20 and 30 years, 5 cases; between 30 and 40 years, 10 cases; between 40 and 50 years, 2 cases; between 50 and 60 years, 2 cases; and between 60 and 70 years, 2 cases. Among my cases the earliest age at which the first symptoms of mucous colitis appeared was 17 years. In the two cases over 60 years of age, the age at which the first symptoms appeared is a little doubtful, but both patients are known to have been extremely constipated as long as they can remember, and they have both been under a medical man's care for the passage of mucus for many years. Hale White[4] found in 60 cases that the symptoms very rarely appeared in patients under 20 years of age, but most frequently in patients between the ages of 20 and 30 years. Boas[5] and others say that the majority of cases occur between the ages of 20 and 40 years. Seeing therefore that all authors are agreed that mucous colitis is a disease of early adult life, great care is needed to determine if we are dealing with a true case of this disease or not when the first symptoms appear at the age of 45 or more years. According to von Noorden[6] the disease does not seem to be equally prevalent in all localities, for in his list of cases Russians appear to predominate.

Most authors agree that constipation is one of the chief etiological factors and my statistics show that in this disease constipation is extremely common; thus 84 per cent. of the cases suffered from constipation, but on careful examination it was found that 56 per cent. had constipation before the mucous colitis appeared, whereas 84 per cent. had constipation during the attacks. This would show that although in a great many cases constipation preceded the attack it was more frequent during the attack and must therefore be looked on rather as a symptom of mucous colitis than as an etiological factor. With regard to diarrhœa little need be said, as very few of the patients suffered from it to any extent. 20 per cent. had diarrhœa before the attack, 8 per cent. had diarrhœa during the attack, and 8 per cent. had diarrhœa before the attack followed by constipation during the attack. These figures show that the disease is only very slightly associated with diarrhœa, but a few of the patients who suffered from diarrhœa before the attack were constipated during the attack.

The nervous temperament of the patient seems to play an important rôle in the causation of the disease. Thus 64 per cent. of my cases showed marked instability of the nervous system in the form of neurasthenia, hysteria, attacks of nervous prostration, &c. 24 per cent. showed various reflex phenomena, such as alternate flushings and coldness of the head and face, or of the feet, with excessive sweats, catches in the voice, and attacks of palpitation, which in one of my cases are very severe and are accompanied by pain in the chest which might almost be looked on as pseudo-angina pectoris. These reflex phenomena frequently end by the patient going to stool or by a copious eructation. Langenhagen[7] lays great stress on these reflex phenomena. He says: "The reflexes go from the irritated intestine by means of the bulb and thence by that of the pneumogastric nerve or the sympathetic system and reverberate upon the most diverse organs, especially the heart, with more or less violent fits of palpitation occurring frequently after meals, irregularity of beat, and even attacks of pseudo-angina pectoris. These attacks are often terminated by a stercoraceous evacuation or a copious eructation and the patient is relieved." The terminal threads of the vagus in the lungs are also apt to be affected in this way, for he has frequently remarked attacks analogous to those of asthma, excepting that they are of an inverse clinical type. The thorax is in a way immobilised in the act of expiration and there is great difficulty in making the inspiratory movements. He goes on to say that "If the irritation caused by the muco-membranous affection of the intestine can produce such repercussion, there must be in such cases a sort of special temperament, a nervous diathesis, an exaggerated impressionability and susceptibility of the entire nervous system." Von Noorden[8] states that the great majority of cases give a history of previous digestive disturbance for a long period preceding the onset of mucous colitis. My statistics show that 76 per cent. of the cases suffered from various disorders of the stomach before the symptoms of mucous colitis made their appearance. The chief gastric troubles were pain and vomiting after meals, flatulence, and hyperacidity, while a few cases had gastric ulcer. Glénard[9] and Langenhagen[10] lay great stress on enteroptosis as an etiological factor, but in my cases 12 per cent. only showed this abnormality, and therefore it would appear that enteroptosis does not play such an important part in the causation of mucous colitis as has been ascribed to it.

In a large number of cases mucous colitis is preceded by affections of the uterus and appendages, and these are of the most diverse nature. In my list of cases no fewer than 36 per cent. had some trouble with the organs of generation, dysmenorrhœa being the most common, while 16 per cent. attribute their illness to a miscarriage. It is difficult to see in what way these affections of the uterus and its appendages can produce mucous colitis, still there is little doubt that the nervous system can be very much affected by even a trifling ailment in these organs. Moreover, as the anatomical relations of the generative organs and rectum are very close, disease of the former may easily affect the latter and particularly in restricting the natural movements of this portion of the bowel in consequence of the formation of adhesions. A few of the cases in my series had suffered for years with appendicitis and had had appendicectomy performed. In one case the mucous colitis came on two years after the operation, and in the others the patients ceased to pass mucus and have remained free from signs of mucous colitis since. These facts show that the symptom-complex of mucous colitis may follow and possibly result from some focus of irritation in the abdomen. In this connexion it will be seen that mucous colitis bears a striking resemblance to asthma. It is well known that in persons who show a predisposition towards asthma some form of irritation to the nasal mucous membrane, however slight in intensity, will precipitate an attack. I have frequently noticed this close relationship between nasal irritation and the development of asthma, for in this neighbourhood affections of the nose are common, such as rhinitis sicca, hypertrophic rhinitis, &c., and there are also not a few cases of asthma. Moreover, in the early summer, when there is an abundance of small particles in the air, either dust or pollen, nasal catarrh is very prevalent and in the more severe cases asthma follows.

The cases of mucous colitis associated with appendicitis appear to fall into two groups—namely, (1) those in which the appendicitis is only part of the mucous affection of the rest of the intestine; and (2) those in which true appendicitis precedes the onset of mucous colitis. It may be stated here that where appendicitis appears only as a part of the mucous colitis, operation will not cure the disease of the colon, whereas appendicectomy in the other type of case may possibly exert a very beneficial influence and ultimately be followed by a complete cessation of the symptoms of mucous colitis. In only one of the cases can a history of previous gall-stones be obtained. Four of my patients had suffered from dysentery some years before the first appearance of the symptoms of mucous colitis.

Pathology.—As mucous colitis is never of itself fatal the number of post-mortem examinations is limited. There are on record a certain number of cases which have at some period or other of their lives shown signs of having had the

[1] Hale White: THE LANCET, Oct. 28th, 1905, p. 1229.
[2] Nothnagel: Sleim Kolik und Membranoser Darmkatarrh, Specielle Pathologie und Therapie. Band xvii., p. 139. Wien, 1898.
[3] Von Noorden: Membranous Catarrh of the Intestines. 1906.
[4] Hale White: THE LANCET, Oct. 28th, 1905, p. 1229.
[5] Boas: Diagnostik und Therapie der Darmkrankheiten, p. 236, 1899.
[6] Von Noorden: Op. cit.
[7] Langenhagen: Muco-Membranous Entero-Colitis, 1903.
[8] Von Noorden: Op. cit.
[9] Glénard: De l'Enteroptose, Paris, Massor, 1885.
[10] Langenhagen: Op. cit.

disease, and Rothmann,[11] Ruge,[12] Edwards,[13] Osler,[14] Jagic,[15] and Weigert[16] have performed necropsies on such cases. In every instance the examination was negative with regard to the bowel. Franke's case, on which a colotomy was performed, also confirms the view that the disease is in no way associated with morbid conditions of the colon. Abercrombie describes a case where there were cysts of the mucous membrane of the bowel. Von Noorden[17] states that there are a number of valuable post-mortem examinations on record that demonstrate positively that a disease picture corresponding to colica mucosa may actually be observed in cases of genuine enteritis. Boas[18] holds the view that these positive findings are of greater importance than any negative findings. This cannot in reality be so, for it is much more important that mucous colitis can be present without any anatomical lesion in the bowel, but occasionally is met with where there is definite evidence of inflammation. Nothnagel[19] recognises this and divides mucous colitis into two varieties—namely, enteritis membranacea and colica mucosa. This is certain, that an examination of the mucus passed fails to reveal any macroscopic or microscopic evidence of inflammation, and therefore the majority of the cases of this disease belong to the disease described by Nothnagel as colica mucosa. A few cases may certainly show the disease-picture of mucous colitis and suffer from a definite enteritis in addition. H. Westphalen[20] opposes Nothnagel in his classification of mucous colitis and his conclusions are: 1. The division of the so-called enteritis membranacea into two groups of different etiology, as Nothnagel does, into membranous enteritis, the result of intestinal catarrh, and into colica mucosa, an intestinal neurosis, can scarcely be maintained. All cases of the disease show a single etiological factor. 2. The membranous casts are formed in the intestine from a nervous supersecretion of mucus. 3. If there is an uncomplicated secretion neurosis large quantities of amorphous mucus are passed. 4. If in addition there is spastic constipation the over-abundant quantity of mucus is compressed and long tubular casts are passed. 5. If the masses are passed with severe pain he assumes, with Rosenheim, that a neurosis of intestinal sensibility exists at the same time. The mucus which is passed is hyalin, and embedded in it may be seen fæces, leucocytes in small numbers, and remains of undigested food particles, but no fibrin. The mucus differs from that of other intestinal diseases in that it contains fewer cellular elements, and also must possess certain peculiar properties, for it is more tough and tenacious and clings to the bowel wall more than ordinary mucus, so that it is with difficulty removed by means of the ordinary post-mortem hydrant.

To explain this peculiar property of the mucus von Noorden[21] has put forward two hypotheses. He says: "It is possible the secretion of mucus occurs under the stimulus of nervous irritation and that it is, from the beginning, constituted differently than normal mucus—i.e., it is more sticky"—and he illustrates this hypothesis by the comparison with the physiological experiment on the dog—namely, "stimulation of the chorda tympani produces an abundant secretion of thin watery saliva, whereas stimulation of the sympathetic produces a very thick tough gelatinous and stringy mucous secretion." His second hypothesis is that, "owing to the constipation produced by the spastic condition of the bowel, the fæces and mucus move very slowly along the large intestine, and absorption of water takes place from the mucus, and so it loses its motility and becomes less elastic, whilst its plasticity and stickiness increase, and when these properties of the mucus reach a certain degree the adherent masses can only be removed by violent contractions that are usually accompanied by pain, and so an attack may be brought about. The attack is determined either by the mass of the mucus or possibly by some chemical changes taking place in the mucus leading to irritating products (these chemical changes being little understood), or by certain nervous influences."

[11] Rothmann: Deutsche Medicinische Wochenschrift, 1887, vol. xiii., p. 602. [12] Ruge: Ibid.
[13] Edwards: Transactions of the College of Physicians of Philadelphia, 1888, series 3, vol. x., p. 82.
[14] Osler's case: Ibid.
[15] Jagic: Zur Histologie der Enteritis Membranacea und des Dickdarmcatarrh, Wiener Klinische Rundschau, 1901, p. 757.
[16] Weigert: Ibid. [17] Von Noorden: Op. cit.
[18] Boas: Op. cit. [19] Nothnagel: Op. cit.
[20] H. Westphalen: Ueber die sog. Enteritis Membranacea, Berliner Klinische Wochenschrift, 1901, pp. 367, 403, 432.
[21] Von Noorden: Op. cit.

By careful consideration of all the facts before us it is fair to assume that mucous colitis is due to a disease of the nervous system consisting of a secretory and motor neurosis. Where the pain is excessive a sensory neurosis exists at the same time. To summarise the evidence that mucous colitis is a neurosis: 1. (*a*) The sex, age, and social position of the sufferers have to be considered. Thus the majority of the patients are females between the ages of 20 and 40 years, all more or less belonging to the middle and upper classes, and the majority manifesting various nervous phenomena. (*b*) The attacks of mucous colitis are frequently induced by excitement or emotion of any kind. (*c*) The almost total absence of any inflammatory condition in the colon. This also serves to disprove one of von Noorden's theories as to the causation of the pain—namely, that chemical changes may occur in the mucus leading to irritant products. If this were so these irritating products would most certainly cause some signs of inflammation in the mucosa of the colon. This is certainly not commonly the case. 2. Constipation and enteroptosis cannot be considered causative factors but only associated conditions. 3. The frequent association of other abdominal disorders, such as affections of the uterus and its appendages, true appendicitis, gall-stones, and abdominal aneurysm. Tuttle[22] quotes six cases where he discovered this condition present. 4. The disease can hardly be said to be caused by adhesions between the colon and surrounding structures, for this would not produce the nervous phenomena, which are protean in type. 5. The close analogy to asthma. In that in a predisposed person a small focus of nasal irritation will produce asthma, so also in a patient with a nervous diathesis a focus of abdominal disturbance, manifold in type, and often slight in character, will produce the symptom-complex of mucous colitis, this peculiar instability of the nervous system resulting in a combined secretory, sensory, and motor neurosis in the colon.

The symptomatology of mucous colitis is best studied by considering first the symptoms of the patient during an attack; and secondly, the symptoms between the attacks. The cardinal symptoms during an attack of mucous colitis are the passage of mucus and abdominal pains. The characters of the mucus passed vary according to the length of time it has remained in the bowel since its formation. Thus if it is soon passed, after being secreted by the mucous cells in the colon, it resembles the uncooked white of egg or frog's spawn and so is clear, colourless, and homogeneous. If it has remained some hours in the bowel the mucus becomes more intimately mixed with the other intestinal contents and also may appear in shreds of varying thickness and length. If it remains still longer in the large intestine before being passed it may be rolled up into round masses which, on careful examination in water, can be seen to be long pieces varying in length and thickness. In one of my cases I have seen such a piece unrolled which measured from 14 to 15 inches in length and one half to three-quarters of an inch in thickness. When the mucus is passed in these long strands it is nearly always discoloured by the fæces and frequently small round scybalous masses are found firmly adherent to the mucus, and occasionally small streaks or even clots of blood can be seen clinging to it. The microscopic examination of the mucus shows fæces and portions of undigested food particles together with, occasionally, red blood corpuscles and a few leucocytes embedded in a clear hyaline medium. Besides the mucus which is passed, hard fæces in scybalous masses form the greater part of the stools. For these patients are nearly always constipated (84 per cent.). In a great many instances undigested particles of food can be seen, especially when the patients have eaten vegetables or fruit which contains a large percentage of cellulose. Melæna is occasionally met with; thus, 36 per cent. of my cases have at some time or other during their illness passed blood with their stools. The amount varies considerably in quantity in different patients and at different times. In a few instances it can be seen that the bleeding proceeds from hæmorrhoids, since these are extremely common in patients who suffer from mucous colitis and are most probably caused by the constipation. Fæcal material is not always present in the stools of these patients, for I have frequently seen stools which have been accompanied by violent pains consisting of mucus only or mucus mixed with a little blood. Intestinal sand is occasionally passed in the motions, and in one of my cases recently there was quite a tablespoonful

[22] Tuttle: Diseases of the Anus, Rectum, and Pelvic Colon. 1903, p. 171.

passed, consisting of reddish-brown grains varying in size. This particular sign has been observed in two of my cases. Langenhagen[23] and Hale White[24] have observed intestinal gravel in the stools of their patients and, according to Langenhagen, the chemical composition of the sand is nearly always constant and consists of a fundamental organic matter mixed with salts of lime in variable proportion. They are usually the phosphates and carbonates of lime and sometimes crystals of ammoniaco-magnesian phosphate are to be met with. Hale White's analysis shows the principal inorganic constituent to be calcium oxalate. Langenhagen and Hale White also point out that the fæces may be very pale and I have noticed this condition on three occasions in one of my patients, the stools consisting of greyish material, and in this particular case, after taking one or two doses of castor oil or other aperient, there has been a copious discharge of dark brown bile which is extremely irritating to the skin round the anus.

Having considered at some length the character of the stools we will next pass on to study the other cardinal symptom—namely, the abdominal pain. This varies very much, on the one hand, according to the severity of the attack, and, on the other hand, with the individual sensibility. The abdominal pain is of two kinds: firstly, there is in some cases a dull constant aching pain felt chiefly in the lower part of the abdomen, which is occasionally relieved by pressure but for the most part unaltered. And, secondly, paroxysms of severe colicky pain which may be so intense as to make the patient vomit, or sweat, or writhe in agony; and this is usually associated with a desire to go to stool, and is nearly always relieved by the passage of fæces, even if the motion only consists of slime or blood and slime. This paroxysmal sharp pain is more characteristic of mucous colitis than the constant dull ache, and is probably caused by the violent peristaltic movements of the bowel to expel or to separate the tough gelatinous mucus from the wall of the intestine. Occasionally there is tenesmus, but very rarely. An examination of the abdomen during an attack of mucous colitis reveals certain very important facts. In the first place, the abdominal parietes are nearly always flabby. It is unusual to find the abdomen either much distended or much retracted. There is nearly always a certain amount of deep tenderness over the colon either throughout its whole length or over a certain portion of it. In the majority of my patients deep tenderness was most marked over the sigmoid flexure. In a large number of cases the colon can be felt and the condition varies between spasm and atony, so that in any one case the two conditions may be met with—namely, spasm in one part and a flatulent distension in another. Hard fæces can often be felt in the sigmoid flexure. Another sign which is occasionally met with is the splashing sound on dipping suddenly with the fingers, and this is most often elicited in the transverse colon, which in some cases is dragged down very much below the umbilicus. Gurgling can frequently be felt along the whole course of the colon. The stomach is occasionally found to be dilated, but not commonly, as this was only found to be present in two of the cases of this series. Glénard[25] states that in 50 per cent. of the cases of mucous colitis there is a marked diminution in the size of the liver and that in only from 2 per cent. to 3 per cent. is it enlarged. My cases do not bear out this statement, for in none of them was there any diminution in the liver dulness, and in two cases the liver was definitely enlarged. An examination of the rectum with the finger usually reveals nothing except hard fæces and sometimes the presence of hæmorrhoids. A sigmoidoscopic examination is also negative.

The signs and symptoms of patients between the attacks of mucous colitis vary very much, but, as a rule, constipation and flatulence predominate. The tongue is usually coated with a whitish or light brown fur. The breath is usually offensive. There is, as a rule, dyspepsia of one kind or another, with loss of appetite; and these two factors usually lead the patient to deprive himself of first one article of food and then another until his diet is so restricted that it is not sufficient to meet the ordinary demands, and so the patients are often thin and wasted. As has been stated before, the patients are usually sufferers from neurasthenia or other nervous troubles. A large number of them, especially when they have suffered from mucous colitis for some length of time, become hopelessly neurotic and take a daily and increasing interest in their stools, and may almost be said to love their complaint. This is the class of patient one hardly expects will recover from the disease. In one of my cases the passage of large quantities of mucus in the urine was noted. In none of my cases was the temperature raised above 99° F., but in the majority the temperature was slightly subnormal and the charts do not show any marked rise or fall. Therefore the clinical symptoms can hardly be said to point to an inflammatory origin.

Diagnosis.—As mucous colitis is not a common disease, and, moreover, occurs in neurotic and dyspeptic individuals who greatly exaggerate their symptoms, it is quite possible that some cases occur which are not correctly diagnosed; therefore every care should be exercised to make a thorough examination of the abdomen and stools in a doubtful case. The patient should be kept in bed and carefully watched for some time, repeated examinations being made of the abdomen, character of the stools, &c., and the bowels well emptied by enemata. In all cases digital and bimanual examinations of the rectum should be made. Mummery[26] strongly advocates the use of the electric sigmoidoscope to exclude the possibility of malignant disease, and also to investigate the condition of the mucosa. The diseases which might be mistaken for mucous colitis are not many in number; amongst the more common may be mentioned:—(*a*) Local conditions in the rectum, such as rectal polypi, carcinoma, tuberculous ulceration, actinomycosis, or simple fibrous stricture. In all these cases a careful examination should reveal the true condition. (*b*) Affections of the colon, such as simple catarrhal colitis, ulcerative colitis, and dysentery. There should not be much difficulty in arriving at a correct diagnosis, for in all these diseases diarrhœa is a prominent symptom, and, moreover, they are all associated with pyrexia of greater or less degree, whereas in mucous colitis it is exceptional to find the temperature above normal, at any rate, for any length of time, and constipation is one of the most prominent symptoms. The character of the stools should be a valuable guide, and the absence of marked tenesmus, and in the case of dysentery the absence of the amœba or of Shiga's bacillus in the stools, should be of much assistance.

With regard to the prognosis, one may say that by itself mucous colitis practically never ends fatally. Hale White[27] states that of his 60 cases 50 per cent. got well, from 10 to 12 per cent. were much improved, and 37 per cent. did not improve; the list of cases which did not improve is entirely made up of females and therefore there is no doubt that the disease is more severe in women than in men. It is important to note that nearly all these cases had had the disease for some considerable time before treatment was commenced, which forms a strong argument in favour of early recognition and treatment. These observations are fully confirmed by my own list of cases, but now that the disease is becoming more recognised, both with regard to its etiology and pathology, one cannot help thinking that the percentage of patients who ultimately completely recover will be even greater than 50 per cent.

The treatment of mucous colitis resolves itself into that for the relief of the attack itself, and that calculated to remove the cause of the disease. We will first consider the treatment of a patient suffering from a definite attack, and here the chief symptoms which require relief are the pain and constipation. Now, as we have decided that the pain is entirely due to efforts on the part of the bowel to remove the mucus which has been secreted into the intestine, our treatment must be directed to the bowel to help it completely to evacuate its contents. This may be attained in two ways—namely, by the use of aperients and by enemata. The aperient which has been of most service in the cases which have come under my own observation is certainly castor oil, and it should be given in fairly large doses and repeated frequently; thus it has been my practice to order doses of half an ounce to be given three times a day until the passage of mucus ceases, and then to be diminished to half an ounce daily. In a few cases there seems to be a great objection to the use of castor oil on account of its nauseating propensities, and in these cases I have substituted calomel in doses of two grains three times a day. Enemata of ordinary soap and water, or containing four or five ounces of olive oil, have certainly been beneficial and have materially assisted the aperient in its action, and in cases where

[23] Langenhagen: Op. cit.
[24] Hale White: Op. cit.
[25] Glénard: Op. cit.
[26] Mummery: The Practitioner, 1906, vol. lxxvii., p. 195.
[27] Hale White: Op. cit.

there is much flatulent distension of the colon the addition of half an ounce of oleum terebinthinæ to the enema is useful. Irrigation of the colon certainly helps in the more rapid separation of the mucus from the walls of the intestine; and for this purpose ordinary warm water may be used at the temperature of the body, the injection being carried out by means of a funnel and a large sized indiarubber catheter passed through the anus and gently carried higher as the water is poured in, as by this means the rectum is distended and so the point of the catheter is not so likely to get caught in the folds of the mucous membrane of the intestine. At least two quarts of warm water should be employed at each injection. Various substances have been recommended to be used in solution for these high injections, such as sodium bicarbonate, sodium chloride, protargol 1 per cent., and silver nitrate ½ per cent., gradually increased in strength; but during the height of the attack it has been my experience that plain warm water affords the greatest relief, and afterwards one of the above solutions may be used once a day to prevent, if possible, the further hypersecretion of mucus. The patient should be kept in bed so long as the pain and passage of mucus continue and hot applications to the abdomen should be used freely. For this purpose flannels wrung out in hot water, and a few drops of turpentine or liquid extract of opium or the tincture of belladonna sprinkled on. These hot applications certainly afford a sense of comfort and give a feeling of relief on account of their antispasmodic tendencies, and so relieve the irregular peristalsis to a certain degree.

With regard to diet during the height of the attack nothing should be given for the first few hours until the more urgent symptoms have been relieved and then small quantities of milk, previously peptonised, may be given, the quantity being gradually increased as the patient improves. Many authors have recommended the use of opium or morphine during the height of the attack but I think that these drugs should not be employed for the relief of pain in this disease because their use will certainly check the peristaltic contractions and will increase the already existing constipation; and, moreover, as the persons who suffer from mucous colitis are nearly always of a neurotic temperament they are also persons who would speedily develop a habit and so would always seek relief from pains of a most trivial character in drugs of this description. Of late years in obstinate cases operations have been much recommended with a view to giving rest to the colon in the hope that by so doing a complete cure might be the result.

The operations which have recently been tried are two in number. The first consists of making a lateral anastomosis between the ileum and sigmoid. A valve-like opening is then made in the cæcum, into which a rubber catheter is placed, and the wound is sewn up, leaving the catheter in the cæcum, as in the case of a gastrostomy; by this means the colon is given complete rest and thorough irrigation of the large bowel may be performed. The result of this operation has not been satisfactory except temporarily; and on fully considering the nature of the disease a complete cure could hardly be expected; for the mucous secretion takes place as a result of a secretory neurosis and not from any local affection of the colon, and therefore any treatment which is directed towards giving the large bowel complete rest will not only not cure the disease but will be more likely to predispose the patient to a similar attack; moreover, the mental effect on the patient cannot be very beneficial, and the nutrition of the patient must also suffer very materially from cutting out so large an absorbing surface from the alimentary tract.

The second operation, which is being tried, is more simple in nature and consists in opening the abdomen and bringing the appendix to the surface and suturing it in position. Having secured it the distal end is removed, and so the appendix is made to take the place of the indiarubber catheter of the first operation. In this operation the colon is not given complete rest as no anastomosis is made with the sigmoid. The results from this operation ought to be more satisfactory than in the former case, because the functions of the colon are not interfered with and irrigation of the large intestine can be carried out very fully. Unfortunately the results of this operation are not known yet as it has only recently been undertaken; but even if is secures a more rapid disappearance of the symptoms during an attack the result will not be permanent unless the further treatment of the patient is correctly carried out; and this treatment must be directed towards securing a daily action of the bowels, combating the peculiar nervous condition present, and to removing any obvious organic disease which might have a deleterious effect by reflexly inducing the neurosis.

In the first place a suitable diet must be recommended and about this the opinions of the various authors of papers on the subject are diametrically opposed; for example, von Noorden[28] recommends a diet consisting of indigestible materials which leave a large residue, and he says "that the change from the patient's ordinary diet should be made suddenly, for then the unpleasant consequences are not nearly so lasting; but the nausea, sense of fulness, rolling noises, occasional pain and dyspepsia pass off in from two to four days: whereas, if the change from a light diet to a very indigestible one is made gradually the unpleasant symptoms remain for a much longer period." Langenhagen,[29] on the other hand, says: "The diet is to be carefully regulated, so as to avoid all indigestible material or such as could possibly produce fermentation." This latter form of diet certainly appears to be more in accordance with the views already expressed in this thesis; for giving a carefully selected diet of highly nourishing substances must be the best means of improving the patient's nutrition and so of improving the neurasthenia or other disease of the nervous system. A daily evacuation of the bowels is indispensable; and to attain this object full use of aperients must be made; and the particular one which has produced the best results in my hands is certainly castor oil, given in half-ounce doses daily, in the early morning and continued for weeks, or months, or even after apparent recovery has taken place. If castor oil cannot be tolerated one of the other aperients must be tried, such as cascara sagrada, calomel, or the saline aperients, &c. Occasional use of the enema is also of great assistance. Abdominal massage is certainly beneficial and should be performed for half an hour daily until the action of the bowels becomes regular. High-frequency currents have been recommended and a few of Hale White's patients derived some benefit, but in the majority no satisfactory result has been obtained from their application. Intestinal antiseptics are worse than useless.

With regard to the treatment of the nervous symptoms hydrotherapy and general massage are most useful, and patients are best treated away from home where they can secure greater freedom from business or social worries. If it is found impossible to treat both the nervous condition and at the same time to give proper attention to securing a daily action of the bowels every effort must be made to empty the large intestine, and doing this will so improve the general condition of the patient that in the majority of cases there will be an improvement in the nervous condition as well. If the disease is associated with any organic trouble, such as appendicitis, moveable kidney, &c., these conditions should receive the appropriate treatment, operative if necessary, and if general enteroptosis exists an abdominal belt should be worn.

CASES.

CASE 1.—The patient was a married woman, aged 54 years. At the age of 21½ years she had acute rheumatism. 21 years ago she miscarried at ten weeks. The cervix was much torn in removing the placenta after five days and the uterus prolapsed with much bleeding from a tear in the cervix. 20 years ago she had a right femoral hernia. 15 years ago she suffered from dull throbbing pains all over the abdomen constantly, with paroxysms of colicky pain preceding the passage of mucus which was first passed at this date. The mucus was passed in casts regularly for years at Easter, August, and Christmas—i.e., during her children's holidays. Intestinal sand was first passed 12 years ago. It was red in colour and variable in quantity; she had only passed sand three times. 12 years ago she alleged that she had peritonitis. She had had a moveable right kidney for eight years. She had passed two large gall-stones, the first eight years ago and the second one and a half years ago; it measured one inch long and three-quarters of an inch in thickness, and was accompanied by blood. She had been subject to fainting attacks for years, with feelings of cold and numbness all over, which passed off, and she sweated afterwards. She never lost consciousness. Occasionally before defæcation she had violent attacks of palpitation of the heart accompanied by great pain in the chest. There had been much improvement since oleum ricini had been administered freely and irrigation of the bowel had been performed. She still had attacks of colicky pain accompanied by the passage of mucus at intervals.

CASE 2.—The patient was a married woman, aged 62 years. She had always been neurotic and constipated. 12 years ago she had much abdominal pain, colicky in nature followed by the passage of scybala and mucus. The mucus was in long casts and shreds intermingled with fæcal material and a little blood. There was much tenderness along the course of the colon, especially over the sigmoid flexure, in which hard fæces could be felt. General enteroptosis was present and she suffered with hæmorrhoids. With regard to her present condition

[28] Von Noorden: Op. cit.
[29] Langenhagen: Op. cit.

she is very much improved and has not passed any mucus in the stools for 20 months. She is always constipated and hard scybalous masses are frequently present, the bowels only acting after the administration of an aperient. Abdominal massage has been performed for half an hour daily for two months and an abdominal belt is worn.

CASE 3.—The patient was a married woman, aged 68 years. She had always suffered with dyspepsia and constipation. Some years ago she had a fissure ani followed by hypertrophy of the sphincter ani. During an attack of influenza two and a half years ago she became more constipated and had much abdominal pain, which was colicky in nature, and was followed by the passage of much glairy and gelatinous mucus. This attack passed off in a few days after the administration of castor oil, and enemata of soap and water. Nearly two years ago she had a fæcal accumulation, almost amounting to intestinal obstruction. This passed off in a week with enemata of soap and water to which half an ounce of turpentine was added, and oleum ricini was given by the mouth. Later the pains in the abdomen increased and more mucus was passed in the stools. The mucus was in shreds and also in masses resembling frog's spawn. The administration of castor oil and enemata was continued for some months. She is now much improved, is still taking castor oil every other day, and she has not passed mucus for more than one year.

CASE 4.—The patient was a married man, aged 60 years. He always had been constipated and markedly neurotic. Nearly two years ago, while straining at a stool, he fainted, and it was then noticed that there was paresis of the muscles of the left side of the face, the left arm, and the left leg. The muscular power returned in a few days. One year ago he had a similar attack and the muscular power again returned in a few days. Hæmorrhoids developed ten months ago which at times bled profusely. One and a half years ago he had pains, dull and aching in character, all over the abdomen, and once or twice during the 24 hours attacks of sharp colicky pain. The stools at this time consisted of hard fæces, much mucus (in shreds and occasionally in hyaline jelly-like masses), and blood, which apparently came from the hæmorrhoidal veins. The passage of mucus continued for one week. The patient has much improved under the administration of castor oil, which he still continues to take each morning, and he has not passed mucus for more than one year.

CASE 5.—The patient was a single man, aged 34 years. He had had enteric fever six years ago and rheumatic fever four years ago. The bowels acted regularly as a rule but occasionally he had attacks of diarrhœa. He had attacks of pain at intervals of two months, which was dull and aching in character, over the whole of the abdomen, and occasionally sharp pains. These attacks of pain usually lasted two weeks. The pain made him sweat and when the attacks came on he suffered from vomiting after meals and constipation. He had never had hæmatemesis or melæna. There was tenderness over the epigastric region and the colon could easily be felt throughout its whole length. He passed much mucus in the urine and also some by the bowel during the attacks. The patient was discharged from the hospital much improved, the treatment being dietetic and aperient, combined with copious enemata of sodium bicarbonate in water every night and later of protargol half a drachm to two pints of water.

CASE 6.—The patient was a woman, aged 39 years. She had suffered for the last two years with indigestion, flatulence, and constipation, and she could not walk far. She had had violent pains in the region of the stomach, which had no relation to food, but were worse when she was run down. There were also aching pains and tenderness all over the abdomen. An examination revealed gurgling and splashing sounds along the whole course of the colon. There was no definite tenderness over the sigmoid. Glairy and sticky mucus was passed in the stools. The patient was discharged much better after treatment, which consisted of aperient medicines, irrigation of the bowel with saline solution every morning, and soap-and-water enemata every night, which later were changed to enemata of olive oil. Swedish massage was applied to the abdomen every day.

CASE 7.—The patient was a woman, aged 35 years. Two years ago she had an operation for appendicitis and a growth of the inside. One year and three months ago nephrorrhaphy was performed on the right kidney. Ever since the second operation she had had pains in the abdomen, which were not particularly worse after food but were worse on exertion. She had a poor appetite and the bowels acted regularly. There was tenderness over the region of the right ovary but no uterine or pelvic trouble. There was general enteroptosis and much mucus in the stools. The pain still continued. With regard to her present condition, there was not much improvement with regard to the pain on discharge from the hospital, but the mucus in the stools became very much less. The treatment consisted of aperient medicines and hot fomentations to the abdomen.

CASE 8.—The patient was a female, aged 38 years. She had always been subject to fits and had suffered from nervous debility all her life. The bowels were very irregular, generally constipated. She had occasionally passed bright blood in her stools. She had been ill, on and off, for years. For eight years she had had burning pains in the right side of her abdomen with frequent intervals of freedom from pain. The pains had been worse during the last three months. She had pains also at the bottom of the back half an hour after food. She suffered a great deal from sick headaches, which lasted 24 hours, about once a fortnight, but she never vomited at other times. The tongue was coated and the teeth were carious. She passed much mucus in the stools like membranes. On examination tenderness was marked on pressure over the stomach and the transverse and descending colon. The sigmoid felt woolly under the fingers. She was much improved under treatment with oleum ricini, saline enemata twice a day, hot fomentations to the abdomen, and general massage for half an hour daily.

CASE 9.—The patient was a female, aged 27 years. She had been quite well till ten years ago. The attacks then began. She had one interval of freedom from pain of four years' duration. She was in the London Hospital for the same complaint two years ago. She had been ill for seven weeks with pains in the stomach, which were sometimes of a colicky nature, and she also felt a constant aching pain in the abdomen. The bowels were rather constipated. The pain came on when she was run down and there might be intervals of freedom from pain for several weeks. She passed much mucus in her stools like membranes and there was also a large quantity of mucus passed in the urine. On examination there was much tenderness over the whole of the colon, and especially over the cæcum. She was now greatly improved. There was no mucus in her stools on her discharge from the London Hospital. The treatment consisted of oleum ricini, hot fomentations to the abdomen, saline enemata daily, which were later changed to half-pint rectal injections of protargol ½ per cent., and general massage for half an hour night and morning.

CASE 10.—The patient was a female, aged 35 years. She had never had a similar attack before but had suffered from measles, tonsillitis twice, and anæmia eight years ago. The bowels were always very constipated and she had been in the habit of taking aperient medicines freely. There had been slight wasting (three pounds in eight months). She had been ill on and off for 15 months with pain in the epigastrium, radiating to the back, about half an hour after meals, and especially after dinner. The pains were relieved by pressure. The appetite was poor and she vomited after a heavy meal, on an average about once a month. On examination the abdomen was rigid and splashing sounds were elicited in the umbilical region. The teeth were carious and the tongue was clean. Much mucus was passed in the stools in membranous casts and calcareous deposits were noticed occasionally. She improved greatly under treatment with aperient medicines, soap-and-water enemata every morning, and olive oil enemata every night.

CASE 11.—The patient was a married woman, aged 28 years. She had one child, eight years old. She had had two miscarriages, the last being five years ago. She had had pain in the rectum since the last miscarriage. The pains were like labour pains and were increased by walking or sitting down. She passed mucus in the stools in shreds 12 months ago. On examination tenderness was found over the ascending colon and the sigmoid felt like a cord. On sigmoidoscopic examination the mucous membrane was red, polypoid, and apparently thickened. She had been curetted twice for foul vaginal discharge. She was operated on on June 24th, 905 (ileocolostomy). (A lateral anastomosis was made between the ileum and the middle portion of the sigmoid.) The passage of mucous and the pains ceased for a time. She was readmitted on August 23rd, 1905, passing much mucus in the stools which resembled membranes. She also suffered with severe abdominal pains. The bowels never acted without aperients. She was discharged much relieved after treatment with aperients and saline injections every morning which later were changed to injections of protargol ½ per cent.

CASE 12.—The patient was a female, aged 23 years. She had had two similar attacks before, the first three years ago and the second 12 months ago. The bowels acted regularly as a rule but when the attacks came on she was constipated. She was admitted to the London Hospital with pains in the stomach and vomiting. The vomiting always began directly after meals. Two months ago she vomited about an egg-cupful of blood and since then occasional streaks. The pain was felt in the stomach and often in the lower part of the abdomen, and through to the back. She also had an aching pain in the abdomen. The pains were not relieved by vomiting and they bore no relation to her meals. The stools contained much mucus and residue of cellulose. An examination revealed gurgling in the transverse and descending colon. There were no enteroptosis and no anæmia. The teeth were good. The tongue was large, flabby, and coated. She improved under treatment with aperient medicines, and saline injections every morning, and soap-and-water enemata every night.

CASE 13.—The patient was a married man, aged 40 years. He had been ill on and off for eight years. He had had several slight attacks, passing a little blood and much mucus in his stools, accompanied by colicky pains in the abdomen. He had always suffered from indigestion, flatulence, and constipation. He had been having attacks about every two months of severe colicky pains in the abdomen, and the stools contained much gelatinous mucus. On examination the abdomen was somewhat distended with flatulence. The stomach was dilated. The liver and spleen were not enlarged perceptibly. There was definite tenderness over the sigmoid, which could easily be felt. The tongue was slightly coated with a light brown fur. The patient was very much improved after taking castor oil three times a day.

CASE 14.—The patient was a man, aged 40 years, an ex-soldier. In Egypt in 1885 he had a very slight attack of dysentery and no relapse. His bowels were constipated as a rule. He was seized with pain in the abdomen and diarrhœa, with nausea. The pain was constant in the lower part of the abdomen and was of such severity that he sweated very much. The stools contained much mucus and a little blood. On examination the descending colon and sigmoid were found to contain hard fæces and hard fæces could be felt per rectum. The temperature was normal. He improved very much under treatment, and on his discharge there was no mucus in the stools and he had a good appetite. He was treated with aperient medicines.

CASE 15.—The patient was a married woman, aged 23 years. At the age of 13 years she suffered from chorea, which was followed by mitral regurgitation. Five years ago she had an ulcerated throat, a miscarriage, and dysentery, and she had never been quite well since. A fortnight before admission she had diarrhœa (from 10 to 13 stools in 24 hours). She had pains in her stomach and in the left side and lower part of the abdomen. She occasionally vomited with relief of the pain for a time. The stools contained a little blood and much mucus in shreds, with little fæcal material. An examination of the abdomen revealed no abnormality and nothing abnormal was discovered on rectal examination. The uterus was small and retroverted and the left ovary was tender. On her discharge from the London Hospital she was much relieved. The treatment consisted of oleum ricini daily, followed by bismuth subnitrate, saline injections every morning, followed by olive oil, four ounces, and water to ten ounces.

CASE 16.—The patient was a single woman, aged 19 years. She had always suffered with bad indigestion, which became worse four months ago. She had always been a nervous girl, suffering with headaches and peculiar sensations in the feet. At the age of eight years she had round worms. At the age of ten years she had diarrhœa for four months in the summer and passed blood in her stools. From the age of 10 to 15 years she had bilious attacks with vomiting. At the age of 15 years she had enteric fever and she had been unwell ever since with constipation. One year ago she had gastric ulcer. The catamenia only occurred once in three or four months; she had severe pain for one or two days before, and for three or four days after, the period had commenced. The pain was not relieved by lying down nor was it increased by walking. She was ill for four months before admission to the London Hospital suffering with a poor appetite, constipation, and pains in the abdomen of a colicky nature preceding defæcation. The stools consisted of hard fæces and much mucus which resembled pieces of skin. On examination the tongue was dry and coated. There was superficial tenderness over the whole of the left side of the abdomen

and over both ovaries. The pulsations of the aorta could easily be felt. The spleen was a little enlarged. She did very well under treatment with oleum ricini and occasional enemata of soap and water, and on her discharge from the hospital the constipation was relieved, there was no pain, and the stools did not contain any mucus.

CASE 17.—The patient was a single woman, aged 38 years. At the age of six years she had measles, which was followed by deafness and a discharge from her left nostril which still continued. When she was a child she had a great many abscesses on her neck, arm, and leg. At the age of 18 years the abscesses ceased to make their appearance and at this time she had attacks of bleeding from the rectum which sometimes continued for four or five weeks. She was not anæmic; she suffered from nose bleeding until she was 21 years of age. The catamenia were not regular but were often profuse. She had an operation performed for this condition. At the age of 23 years she had attacks of nervous prostration and lost the use of her limbs and voice for a time. At the age of 25 years she had slight intestinal obstruction. She had always bled very much after having teeth extracted. She had two sisters and one brother who suffered with bleeding from the rectum. She had always been very neurotic, suffering very much with flushing of the face followed by coldness. She had always had indigestion and said that the stomach felt like a stone and her face was very red. She had constipation and pain before the hæmorrhage started and diarrhœa afterwards. Her illness began after the attack of intestinal obstruction, at the age of 25 years, with cough, and pain in the left lumbar region which felt like sharp needles. The pains were also felt in the left iliac region and down the left leg, and they always preceded the hæmorrhage from the bowel. She suffered greatly with thirst. The stools on her admission to the London Hospital contained membranous shreds of yellowish colour which were of mucoid consistence and were four inches in length. There was no blood in the stools. An examination of the abdomen revealed nothing except tenderness all over the left side on palpation. On her discharge from the hospital she was much relieved. The treatment consisted of aperient medicines, and later salol was tried but this was changed and a pill was given containing cupri sulph., gr. ½, and opii, gr. ¼. Later oleum ricini was given daily, and saline injections, one drachm to the pint, twice a day.

CASE 18.—The patient was a man, aged 42 years. He had always suffered with indigestion. Six years ago he had inflammation of the bowels. He was quite well until a week before admission to the hospital; he then felt sick and had abdominal pains, chiefly in the hypogastric region. The bowels acted regularly until the attack began and then he suffered with diarrhœa. The stools contained a considerable quantity of mucus and a little blood. An examination revealed tenderness over the whole abdomen but especially marked in the hypogastric area. The tongue was pale and furred. He got well with treatment, which consisted of oleum ricini followed by bismuth carbonate and later by saline aperients.

CASE 19.—The patient was a man, aged 62 years. He had been all over the world and had dysentery 20 years ago. He had not had any other illnesses. The illness began four or five years ago. He suffered alternately with diarrhœa and constipation and had lost three stones in weight during the last five years. He had nausea when the diarrhœa commenced, and when he was constipated the stomach got very large and he suffered from flatulence. He had sharp pains in the stomach preceding the act of defæcation, and the pains were relieved afterwards. The stools contained a little blood and much mucus. On examination there was tenderness in the left iliac fossa. The liver was palpable and the dulness extended to near the umbilicus. There was a certain amount of gurgling in the lower abdominal region. He improved under treatment which consisted of aperient and antispasmodic medicines.

CASE 20.—The patient was a female, aged 30 years. She had not been well for the past ten years. She had had dysentery in South Africa four years ago. She had been ill for 16 weeks with pains in the abdomen which came on in very severe attacks. The bowels were always constipated and the stools contained much mucus which was of the consistence of jelly. She also suffered from neurasthenia. She was greatly relieved on her discharge from the hospital. The treatment consisted of oleum ricini, warm fomentations every four hours to the abdomen, enemata of olive oil, six ounces every night, enemata of soda one drachm to the pint every morning, and general massage for half an hour daily, followed by pilula Blaud with cascara.

CASE 21.—The patient was a single woman, aged 34 years. The first attack occurred six years ago and she had not been well since except during the intervals between the attacks. The intervals were about three months in duration. The bowels were always constipated. As soon as she began work again or took any solid food the attacks came on. She was taken ill in the night with intense pain in the stomach which caused her to faint. There was much retching and she vomited. The pain was of two kinds—a constant pain, felt chiefly in the upper and left part of the abdomen, which had lately increased in severity; and an acute smarting and stabbing pain, which came on ten minutes after food, which was felt chiefly in the epigastrium, and in about two hours time in the lower part of the abdomen. She had piles which bled and she had suffered with frontal and temporal headaches. When she took aperients a dragging pain was felt in the region of the sigmoid. The stools on admission to the London Hospital contained large constipated masses and much mucus. On examination, at one time nothing abnormal was felt in the abdomen, and subsequently there were a gurgling distension in the ascending colon and spasm in the sigmoid. The tongue was moist and the teeth were false. She did well under treatment which consisted of aperient medicines, hot fomentations to the abdomen, and soap and water enemata daily.

CASE 22.—The patient was a single woman, aged 32 years. She had been ill as long as she could remember, suffering with dyspepsia and a poor appetite. The bowels acted regularly as a rule. Two months before her admission to the London Hospital she suffered with pains in the stomach, which were sometimes dull and aching in character, and at times they were very sharp, "doubling her up," and when the acute pain was over she sweated and felt as if she had been beaten. The pains were sometimes brought on by even a very little food. She did not vomit but suffered from nausea. The stools contained very much thick, tough, gelatinous mucus but no membranes. On examination there was some deep tenderness in the epigastric region; the stomach was not dilated. There was a sensation of gurgling in the right iliac fossa with spastic distension of the colon. This was also noticed to a less extent over the sigmoid. She did well under treatment with aperient medicines and hot fomentations to the abdomen.

CASE 23.—The patient was a single man, aged 30 years. He was a strongly built athletic man accustomed to the usual games. He was decidedly of a nervous temperament, and frequently had flushings of the face and a slight catch in the voice. He had had constant attacks of diarrhœa accompanied by the passage of slime in the stools. Eleven years ago he was seen by Sir Frederick Treves who said that he had appendicitis and he was advised to have appendicectomy performed when the attack had subsided. The attack lasted ten days and as he felt quite well afterwards he refused operation, but very soon the attacks of pain, diarrhœa, and passage of slime came on at intervals of some months at first but lately every week. The attacks of diarrhœa came on more frequently (as many as 15 stools being passed in a day). The attacks were accompanied by pain and slight tenesmus. The pain was chiefly felt in the right iliac fossa but also in the left when the attacks were on. The attacks always came on when he was at work in London but not on a holiday. The stools contained a large quantity of mucus but no definite casts were passed while he was under observation. The bowels were constipated between the attacks. On examination the abdomen moved normally. There was distinct tenderness in the right iliac fossa. The right rectus was more rigid than the left at the lower part. To the outer side of the right rectus muscle an indefinite mass could be felt which was distinctly tender on palpation. He was operated on on Oct. 18th, 1906. The appendix was found in a mass of adhesions, the distal end being represented by a fibrous mass. The appendix was removed. Convalescence was uninterrupted and he has remained free from the attacks ever since.

CASE 24.—The patient was a married woman, aged 31 years. She had been ill ever since her first child was born seven and a half years ago. She got worse with each successive pregnancy. She had had anæmia, gastric ulcer with hæmatemesis, pains in the stomach, &c., and had always been constipated. She was in bed for four months last year with a miscarriage and an offensive vaginal discharge. She was markedly neurotic and constipated and suffered from abdominal pains which preceded defæcation. The stools on admission to the London Hospital contained much granular débris and mucous casts. On examination the tongue was tremulous and furred. There was slight oral sepsis, and tenderness on palpation was noticed over the lower descending colon. The stomach was not dilated. The kidneys and liver were not palpable. Later there was tenderness over the ascending colon and sigmoid. A sigmoidoscopic examination showed nothing abnormal except slight superficial erosions. She was treated with aperients, enemata of soap and water, and olive oil, and turpentine stupes were applied to the abdomen. As her condition on her discharge from the hospital was not satisfactory she was advised to have an operation performed (appendicostomy).

CASE 25.—The patient was a single woman, aged 30 years. She had suffered for years with pains in the stomach after food and with dysmenorrhœa. She was markedly neurotic. She had been ill for two years. She had suffered much from constipation and abdominal pains, which were felt chiefly in the sides of the abdomen and were "bearing down" in character and were felt both before and after defæcation. The stools contained scybala, mucus, and a little blood. On examination the tongue was moist and coated. The stomach was not dilated. The sigmoid was loaded with hard fæces and there was gurgling in both iliac fossæ. She improved greatly under treatment with aperient medicines and enemata of soap and water every morning.

St. Neots.

NOTES ON, AND REMARKS SUGGESTED BY, A CASE OF MALIGNANT ENDOCARDITIS (DIPHTHERITIC) WITH TERMINAL CEREBRO-SPINAL SYMPTOMS.

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THE following experience which I believe to be very rare justifies a few remarks on this subject.

On March 14th, 1907, I was informed that a male child, aged between three and four years, had died suddenly during the night, having the previous day exhibited marked retraction of the head, strabismus, and other signs of cerebro-spinal meningitis, including a copious petechial rash all over the body. I suggested a post-mortem examination and this was arranged for and carried out on the 16th, the attending medical man and myself being present. The boy had been medically attended for about a week on account of headache, loss of appetite, furred tongue, constipation, and a fugitive erythematous rash, the provisional diagnosis being "gastric disturbance." The later symptoms of occasional delirium, restlessness, and tenderness along the back, with a continuance of drowsiness, headache, and fever, had suggested the possibility of malignant endocarditis, but the stethoscope failed to find any clinical evidence of valvular defects though carefully searched for on the day before the child's death. Slight jaundice was observed two days before death; retraction of the head and strabismus about 36 hours before death; and the petechial rash and slight opisthotonos only on the last day of existence.

At the post-mortem examination we observed a copious petechial eruption of the skin of wide distribution. There

was no obvious discharge from the nose or ears, and the medical man who had been in attendance said that he was unaware of any. There was no obvious enlargement of the glands to be felt anywhere. On opening the skull and examining the brain a few petechiæ and some slight hyperæmia were observed in connexion with the cerebral meninges and a few of the posterior convolutions were slightly adherent. Prior to opening the skull I had removed under aseptic conditions by lumbar puncture about two cubic centimetres of cerebro-spinal fluid which was observed to be blood-stained and slightly turbid. I inoculated with this fluid two sterile blood-agar tubes and two ordinary broth tubes, which I subsequently conveyed to the laboratory for further investigation. On opening the abdomen the omentum was observed to have a dirty, degenerated appearance. The intestines were empty and their walls were dotted with numerous petechiæ; otherwise they appeared normal. The spleen was slightly enlarged, very dark, and congested and firm. The liver was not removed from the body but it appeared to be healthy. A similar remark applies to the lungs. The pericardial sac contained a slight excess of fluid. The heart was removed and found to exhibit some signs of fatty degeneration. Its walls showed also a few petechiæ. On slitting open the aorta some well-marked vegetations were found on the free edges of the aortic cusps. The mitral valves were found to be thickly coated with similar deposits. With the aid of a sterile swab I inoculated another blood-agar tube from the site of these vegetations. Each kidney was found to be extremely hæmorrhagic on the surface, under the capsule, which stripped fairly easily. The suprarenal bodies were looked for but were not recognised. The post-mortem appearances plainly indicated a septicæmic or embolic condition, the cardiac lesions being characteristic of malignant endocarditis.

The question naturally arose, where was the primary infecting focus? and what was its nature? There being nothing obvious I felt certain that there must have been some sore-throat or aural antecedence which had not been deemed of any consequence, and on cross-examining the parents I ascertained that the child had had earache and discharge from the ear about three weeks previously. The ear had apparently ceased discharging before the medical attendant was called in and had been so little thought of that the matter had not been even mentioned to him. The parents were certain that the child had never complained of sore-throat, though in order for a middle-ear to become infected it almost necessarily follows that in the absence of an external lesion infection must have been conveyed in the first place from the naso-pharynx. After incubation at 37° C. for 16 hours I obtained a copious growth of a pure culture of Klebs-Löffler diphtheria bacillus from the cerebro-spinal fluid and almost a pure culture of the same organism from the heart swab. On account of the naked-eye appearances at the post-mortem examination the attending practitioner had naturally certified the cause of death as malignant endocarditis, but the subsequent bacteriological analysis revealed the interesting fact that the infecting organism was the diphtheria bacillus.

One of the chief points of interest is that the case was reported to me after death because of the suspicious resemblance of the later symptoms to cerebro-spinal fever, as shown by the retracted head, the strabismus, headache, photophobia, raised temperature, and petechial rash. Bacteriological investigation clearly showed that the diphtheria bacillus had certainly invaded the central nervous system and embolic plugs laden with diphtheria bacilli would be sufficient to account for these symptoms. As the necropsy was conducted in a small room in a cottage the vertebral column was not opened up. Perhaps this was not altogether a disadvantage, for it lessened the possibilities of contamination of the cerebro-spinal fluid. No evidence of any diphtheritic membrane was seen elsewhere. The attending practitioner had examined the throat with no result during life.

The case here reported might easily have been certified without post-mortem examination as a death due to cerebro-spinal meningitis. Even after post-mortem examination it was certified as death from malignant endocarditis but subsequent bacteriological investigation seems to indicate that death was due to a diphtheritic septicæmia. The case recorded once again suggests that isolated cases of death preceded by symptoms of cerebro-spinal meningitis should not be attributed to epidemic cerebro-spinal fever without adequate bacteriological proof. To justify the diagnosis of epidemic cerebro-spinal fever it would appear to be quite necessary that the presence of the diplococcus intracellularis of Weichselbaum should be demonstrated.

It is greatly to be regretted that the circumstances of the necropsy in the case I have recorded rendered it impossible to make a full examination of the middle and internal ear and of the naso-pharynx. These important structures, the porchway or entrance for probably the majority of infective bacteria, are, as a rule, neglected in ordinary post-mortem examinations. Their importance should, I venture to submit, form a pretext for invariable examination in all cases of an infective or doubtful nature.

The finding of the diphtheria bacillus in the cerebro-spinal fluid of a case dying with symptoms of cerebro-spinal meningitis naturally suggests a possible explanation why diphtheria antitoxin has been found of service in some cases of cerebro-spinal meningitis, though I am quite prepared to believe that such treatment might have beneficial results quite irrespective of the diphtheria bacillus and in the actual presence of the diplococcus intracellularis.

Another interesting observation to call to mind is the diphtheroid bacillary infection hypothesis of W. Ford Robertson, G. D. McRae, and J. Jeffrey in connexion with general paralysis and tabes. The existence of a true diphtheria bacillus in pure culture in the cerebro-spinal fluid is in itself an interesting and important fact. Its presence as the predominant organism in endocardial vegetations is also both interesting and suggestive. Its low virulence for the guinea-pig, as tested by experiment on two guinea-pigs by Dr. W. Bulloch, is equally interesting and affords pabulum for reflection. I have to thank Dr. Bulloch for kindly conducting the animal experiments in connexion with this organism and I am very greatly indebted to him for the weight of his authority in corroborating its identity as a true diphtheria bacillus.

It seems worth while to set down in detail the results of bacteriological investigation.

1. The organism was isolated in pure culture on blood agar direct from the blood-stained cerebro-spinal fluid of a child who had died with marked cerebro-spinal symptoms after a previously ill-defined illness.

2. After 16 hours' incubation at 37° C. very characteristic colonies of the bacillus diphtheriæ were found on the blood agar. The appearance of the colonies at once suggested bacillus diphtheriæ. This was forthwith confirmed by:—

3. *Microscopic appearances.*—The bacillus was Gram-positive. Films stained by Löffler's blue, by Neisser's and by Gram's methods exhibited large long diphtheria bacilli conforming to Westbrook's types A and C, Neisser's and Babes-Ernst bodies being particularly well marked.

4. *Cultural characters.*—(1) The organism was aerobic and facultative anaerobic; (2) it grew on gelatin at room temperature without liquefaction; (3) it produced marked acid in glucose broth and in milk; (4) it produced slight acid in saccharose broth; and (5) it did not clot milk.

5. *Animal experiment.*—For details of its comparative pathogenicity I am entirely indebted to the kindness of Dr. Bulloch who reports as follows: "I have carefully examined the culture you sent and have no doubt that it is a genuine diphtheria bacillus of slight virulence. Morphologically it is the long variety of Klebs-Löffler with marked Neisser's granules, Gram +. Marked acid production in glucose broth. A culture (in broth) 24 hours old was injected into two guinea-pigs in doses of 1 c.c. and 5 c.c. respectively. In both cases marked infiltration occurred with loss of weight. The 1 c.c. guinea-pig was killed in 24 hours and the infiltration at the point of inoculation was a sanguinolent œdema. No bacilli, however, were seen in smears and a culture was recovered with some difficulty. The suprarenal bodies (usually much congested) were not affected. The other guinea-pig four days after inoculation showed slight infiltration only."

I might add that this bacillus even in the original culture when only 16 hours old exhibited unusually large and grotesque forms which appeared to me to favour the idea that in the life-history of the bacillus it may under certain conditions assume a hyphomycetic form.

There can, I think, be but little doubt that the history of the case I have recorded may be written as follows. The child in the first instance suffered from a mild form of diphtheria which was untreated, and the bacilli found their way *viâ* the Eustachian tube to the middle ear, giving rise to otitis media. Thence by way of the blood or lymph bacilli were carried to the heart, there setting up endocarditis and

finding lodgment on the valves. Here they produced vegetations some of which by embolism were carried to the various organs affected, including the brain and spinal cord. Such distribution of the diphtheria bacillus is thought to be extremely rare. Indeed, *malignant* endocarditis is an extremely rare complication of any of the usual infective fevers. Cerebro-spinal symptoms in association with malignant endocarditis have been observed, of course, but I am not aware that the diphtheria bacillus has been demonstrated as the infecting organism in any recorded case previous to the present communication. If any such cases have been recorded previously the rarity of the condition appears to me to justify the present record.

Southend.

A CASE OF DOUBLE OPTIC NEURITIS; SYMPTOMS OF CEREBELLAR TUMOUR; COMPLETE RECOVERY.

BY CHARLES HIGGENS, F.R.C.S. ENG.

A BOY, aged six years, was brought to see me on May 22nd, 1894. I was told that it had been accidentally discovered that he could not see properly and that six weeks before his sight appeared to be perfect. He could distinguish none of the test types. In his right eye the optic disc was swollen and its outline was blurred. The left disc was red but its outline was well defined and it was not swollen. He had some nervous symptoms resembling chorea; there was no albumin in the urine. I advised that he should consult a physician and did not see him again at that time. Two years later, on June 9th, 1896, I saw the patient's mother, who told me that he became quite blind but began to recover slowly and eventually got quite well. On Sept. 19th, 1904, I saw him again. He was myopic and I thought that his discs were rather pale. His vision was:—

Right eye $\frac{6}{36}$ c – $\frac{75 \text{ cyl.}}{2 \text{ spn.}}$ $\frac{6}{6}$; left eye $\frac{6}{36}$ c – $\frac{75 \text{ cyl.}}{1 \cdot 50 \text{ spn.}}$ $\frac{6}{6}$.

I saw him again on May 8th, 1907. He was a tall well-set-up fellow of 19 years and appeared to be perfectly healthy. His discs were rather pale; his myopia had increased by 1 D. but his vision was $\frac{6}{6}$ with correcting glasses and both fields were normal. He told me that after I saw him in 1894 he was taken to Dr. Ferrier. I wrote to Dr. Ferrier and asked him if he would look up his notes of the case and let me know what he made of it, and he very kindly wrote to me as follows: "I first saw the boy in May, 1894; he then had double optic neuritis, more marked in the right eye, and some symptoms of cerebellar disease. In July of that year the cerebellar symptoms were marked, but the neuritis had disappeared and the discs were somewhat pale. He could only read J. 20. In March, 1895, his vision was $\frac{6}{12}$. He appeared otherwise well. My diagnosis was cerebellar tumour? Might it be a tubercular nodule which has become cretified?"

Remarks.—The duration of the boy's illness appears to have been under 12 months; as far as was known he was quite well six weeks before he saw me in May, 1894, and from Dr. Ferrier's report he had quite recovered by March, 1895; his vision being only $\frac{6}{12}$ was probably accounted for by a low degree of myopia.

The case is interesting chiefly on account of the complete recovery which took place; my experience of similar ones is that they almost invariably go blind and that some of them die, though often years after the appearance of the first symptoms. The patients wander about from hospital to hospital, or from one medical man to another, blind and staggering, and it is rare for the surgeon or physician who first sees them to see the end of them. I have been in the habit of pointing out blind staggering children and calling them cerebellar children, and in one or two cases in which I have seen a necropsy tumour in the cerebellum was found. In the case reported Dr. Ferrier's suggestion that it might be a tuberculous nodule which has become cretified is probably correct, but there is the possibility of congenital syphilis, though the patient shows no signs of it and I have not gone into the history.

Treatment, so far as I know, does no good, but one has to do something and if a case recovers under any kind of treatment so much the better. I have trusted mainly to mercury and iodide and in two cases have trephined with very marked relief, which was, however, only temporary, and the last time I saw the patients they appeared to be neither better nor worse for the operation.

Brook-street, W.

A CASE OF LAND SCURVY

OCCURRING IN A PATIENT AFTER A PROLONGED PERIOD AS AN IN-PATIENT IN A HOSPITAL AND AS A COMPLICATION OF A FISTULA IN ANO.

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WHAT is the determining factor in the etiology of scurvy as yet remains a problem of medical science. Whether the theory of chronic ptomaine poisoning or whether that of dietetic error be the truth is undecided by those who have studied the subject especially, evidence seeming to be equally strong for both. Experimental information resolves itself into two classes, that resulting from laboratory work proper and that gleaned from the logbooks of Arctic and other expeditions. The experiments of Harley and Jackson consisted in the feeding of apes with scorbutic and anti-scorbutic diets. Their results seem to be mitigated by the following facts: (1) that monkeys are not naturally carnivorous; (2) that the tinned meats used were allowed to become tainted after preservation and not before, as is the case of the doubtful canned food found in the cheapest shops or in marine stores; and (3) that the digestive economy of the lower primates seems to be capable of dealing with putrescent food.

Briefly, the evidence derived from the reports of travellers during the past six years is as follows. 1. Dr. Koettlitz, who accompanied both the Nansen and the British National Antarctic Expeditions, reports in reference to the latter that there was very considerable trouble from disablement of the crew from scurvy, notwithstanding the fact that limejuice occupied a prominent position in the rations served out daily. It was found out on investigation that the preserved meat supplied for the expedition was not beyond reproach. 2. The Jackson-Harmsworth Arctic Expedition yielded some interesting facts. When the relief ship reached them it was with the intention of getting back before the ice closed. In this they were unsuccessful and the vessel with her crew remained 12 months. The men who were encamped on the ice lived during this year, as they had for many months before, upon fresh bears' meat, taking no limejuice; they escaped any attacks of scurvy. Those who remained on the ship, refusing bears' flesh, chose to consume canned goods, often in an unwholesome condition, and notwithstanding the fact that a limejuice ration was served out daily, in the course of the year, all suffered and two died. 3. When Nansen and his companion Johansen left the *Fram* in their attempt to reach the Pole by sledge they were away 15 months, during which they existed entirely upon the flesh which fell to their skill as hunters and endured terrible hardship and toil, despite which they returned hale and whole.

In deducing from such statements as these it must be borne in mind that limejuice varies in quality and that the good intentions of the medical man in charge may have been rendered abortive by a sailor who disliked limejuice.

Such is the evidence of the ptomaine theory; evidence equally strong can be rallied upon the side of the dietetic supposition. 1. In 1795 Sir Gilbert Blane introduced a limejuice ration into the navy's diet-sheet, with the result that scurvy, which had been very prevalent, became comparatively rare. It was, however, pointed out by Aitken in 1872 that Blane at the same time greatly improved the food generally. 2. Lieutenant-Colonel Hamilton reports the following.[1] In 1885 he was in charge of the 23rd Pioneers, a Sepoy regiment, during an expedition among the hills of the northern frontier of India. Owing to the roguery of the native contractors the supply of vegetables arranged for failed. After a few weeks, in spite of the fact that fresh meat was abundant, scurvy showed itself among the troops. A small green cruciferous plant, found growing upon the hills, was then used as a spinach, with the result that rapidly the scurvy disappeared. 3. Dr. F. C. Sinclair in medical charge of a guano expedition to Walfisch Bay, S.W. Africa, states that his 400 Damara natives remained free from scurvy whilst the supply of freshly killed meat was good. His cattle, however, were carried off by rinderpest. The diet then consisted of peas, wheat-meal, porridge, rice, bread, biscuits, tea, and coffee, all sound food. In two months scurvy was prevailing among the negroes,

1 Brit. Med. Jour., October, 1902.

with the exception of the native foremen who, sharing food with the whites, obtained a portion of the meat that was left. He, attributing the cause to the absence of meat, fresh or otherwise, pointed out that the Damaras are in the habit of eating to engorgement of the putrid carcasses of hunted animals without apparent harm and certainly without scurvy. Dr. Sinclair suggests that the transference of inland natives to the more rigorous climate of the coast, the conditions of the huts, and the heavy work in which they were engaged may have been accessory causes to the outbreak.

It will be seen from the above that there is weighty evidence upon both sides and in support of both theories.

Roberts in his text-book gives the following three possible causes of scurvy: (1) the absence of vegetables or their ingredients, probably the malates and lactates; (2) the presence of toxic material in the food; and (3) the presence of a specific organism in the food or introduced in some other way. In support of the first two theories evidence has been given above; in support of the last there seems little to be said except the parallel between scurvy and other diseases known to be produced by a specific organism.

In the case reported below there is nothing in the history of the patient or in the treatment which she received to lend support to either the first or the third augument; but the presence of a septic focus around the rectum whence absorption takes place readily and freely suggests the possibility of the introduction of toxic material into the circulation. Whether such poisonous matter produced scorbutic symptoms or not it is difficult to determine, but since the other factors usually associated with an outbreak of scurvy were absent it is not unreasonable to suppose that its presence may have been the determining element. The reaction of the patient to treatment also is instructive, for she responded quickly to ordinary antiscorbutic measures. Apart from local treatment for the hæmorrhage, the patient was given the following: four half-drachm doses of calcium chloride in the course of 48 hours and a subcutaneous injection of a hundredth of a grain of ergotinine citrate, whilst two lemons and quantities of green vegetables were added to her diet. Under this treatment she speedily recovered in the manner detailed below. With the constitutional improvement the condition of her wound, which previously had been unsatisfactory and sluggish, underwent a corresponding change for the better. The use of calcium chloride was on account of the bleeding, and although unfortunately the alkaloid ergotinine was used as well, it is reasonable to accredit the rapid cessation of hæmorrhage partly at least to the use of the calcium salt. This is of interest because of the doctrine put forward by Sir A. E. Wright that the prominent feature in the pathology of scurvy is a reduced alkalinity of the blood, together with a reduced coagulability which allows of the spontaneous outpourings of that fluid. This view of the pathology of scurvy dovetails with the theory that its cause is absence of vegetable salts from the food; for the citrates, tartrates, and malates of herbaceous food become changed into carbonates in the blood. As, however, the food which the patient had been in the habit of taking does not seem to have been in any way scorbutic, the suggestion that absorption from a septic focus was the initiating cause receives support. The history and progress of the case are as follows.

The patient was admitted to St. Mark's Hospital on April 6th, 1907, with an unhealed wound after two operations for fistula in ano which had left her without sphincteric control. There was also some prolapse of mucous membrane. She was a spare woman of pallid aspect, showing evidence of loss of weight and prolonged suffering, but exhibiting no signs of disease other than the rectal mischief. She gave a history of typhoid fever ten years previously and some chronic bronchitis. Her present trouble began in September, 1904, with a fistula of moderate size. She was—during 1905 and 1906—treated at St. Bartholomew's Hospital, being admitted into the in-patient department during the October of each year. During the whole of this time there was a copious purulent discharge which progressively increased. In February, 1907, she came as an out-patient to St. Mark's Hospital and in April she was admitted as an in-patient. Her wound then was an extensive gap situated dorsally and to the left of the anus, involving the mucous membrane of about from half an inch to an inch of the rectum. Owing to the separation of the cut surfaces of the sphincter ani and to the extensive fibrosis around, there was no power of that muscle and therefore no control. The surface of the wound was unhealthy in appearance, having that peculiar aspect known as "callous." There was an abundant discharge of thin, offensive pus which had produced an irritable condition of the surrounding skin. On April 9th, 1907, a branch tract of the fistula was opened up, preparatory to an attempt to diminish the gap and restore the continuity of the sphincter. 19 days later such an effort was made, the wound being freshened and brought together with sutures. Some suppuration occurred necessitating the removal of three stitches, the wound then being a little smaller than before. For a fortnight following the operation the temperature ranged between normal and 101° F., then for a week it remained within a degree of 98·4; during the whole of which three weeks the wound continued to discharge freely, its surface retaining the sluggish appearance. The temperature now became irregular, ranging through two degrees; at the same time the patient assumed that inert listless condition commonly seen in typhoid fever. Soreness of the mouth was complained of, and on examination the gums were found to be tender and swollen, the tongue clean, and the pulse 80. The patient was given an alum mouthwash, whilst careful attention was enjoined as regards the cleanliness of the teeth. The temperature now became intermittent, the excursion being 3°. After this condition had lasted for seven days hæmorrhage began from the gums, which soon became profuse. On the following day blood began to flow from the rectal wound, soaking the dressings which were constantly changed. Simultaneously a purpuric rash appeared upon the face, shortly followed by petechiæ of wider distribution. The arms, especially the shoulders, and the legs, especially the buttocks and thighs, were mostly affected, the trunk being almost free from spots. With the onset of the bleeding the temperature became steady; the pulse was weak and irregular and it varied between 90 and 100, whilst the respirations were 28 per minute. In the course of 24 hours four half-drachm doses of calcium chloride were given, a hazeline mouthwash was used frequently, and at the onset of bleeding a hypodermic injection of ergotinine citrate was administered. At the point of entrance of the needle a hæmatoma of the size of half a walnut was produced. After the hæmorrhage had continued for three days it gradually ceased. The patient was then given an alum mouthwash and a mixture containing iron and quinine, whilst two lemons and extra vegetables were added to her daily diet. There was no return of hæmorrhage, the temperature and pulse became satisfactory, the mouth resumed its normal condition, and the patient's general condition greatly improved; her weight increasing, the mental outlook becoming bright and active, and her pallor less marked. Associated with this improvement there was a corresponding change in the wound, the reparative power of the tissues increasing, and healing being accelerated. Three weeks later the patient was able to go to the seaside, if not cured very considerably improved.

Three points of interest seem to arise out of this case. 1. The occurrence of scurvy in a patient whose food had been the same as customary among people of her class, for on special inquiry she stated that she was in the habit of taking plenty of good and fresh food. Moreover, she had been in hospital a month, where her diet was a plentiful one of milk, beef-tea, custard, jelly, and so on, before the onset of the scorbutic symptoms. 2. The possibility of the retardation of healing seen in certain forms of long-standing "callous" wounds being due to a scorbutic diathesis. 3. The possibility of the long-continued suppuration and mental distress being the cause of this diathesis, a vicious circle thus being produced.

I am indebted to Mr. F. Swinford Edwards, senior surgeon to St. Mark's Hospital, for permission to report this case.

PRELIMINARY NOTE ON A LEUCOCYTOZOON FOUND IN THE BLOOD OF THE RED GROUSE (LAGOPUS SCOTICUS).

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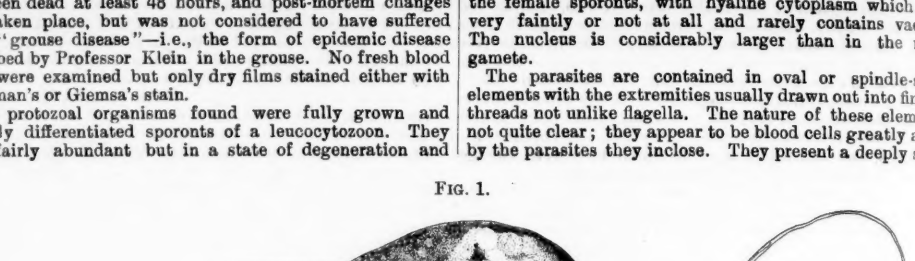
WHILE examining blood films of a number of grouse sent to Dr. E. A. Wilson, field observer to the Grouse Commission, as birds suffering from grouse disease, a protozoal blood parasite of a genus hitherto unknown in the *Tetraonidæ* was discovered. The bird in which it was seen

had been dead at least 48 hours, and post-mortem changes had taken place, but was not considered to have suffered from "grouse disease"—i.e., the form of epidemic disease described by Professor Klein in the grouse. No fresh blood films were examined but only dry films stained either with Leishman's or Giemsa's stain.

The protozoal organisms found were fully grown and sexually differentiated sporonts of a leucocytozoon. They were fairly abundant but in a state of degeneration and the female sporonts, with hyaline cytoplasm which stains very faintly or not at all and rarely contains vacuoles. The nucleus is considerably larger than in the macrogamete.

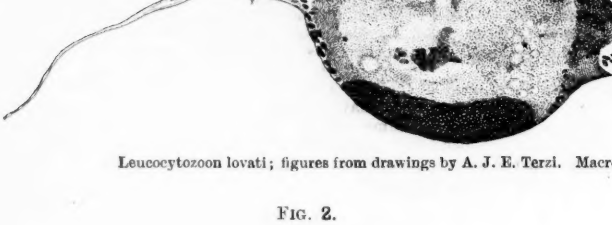
The parasites are contained in oval or spindle-shaped elements with the extremities usually drawn out into fine long threads not unlike flagella. The nature of these elements is not quite clear; they appear to be blood cells greatly altered by the parasites they inclose. They present a deeply stained

FIG. 1.



Leucocytozoon lovati; figures from drawings by A. J. E. Terzi. Macrogamete. (× about 2000.)

FIG. 2.



Leucocytozoon lovati, microgametocyte. (× about 2000.)

FIG. 3.

Normal red corpuscle of grouse. (× about 2000.)

stained badly. The following is a brief provisional description: Macrogametes of an oval shape, more or less elongate, 19 μ to 25 μ in length by 12 μ to 16 μ in width. The cytoplasm has a coarse alveolar structure, stains intensely blue, and usually presents one or more clear spaces or vacuoles. Nucleus either rounded or oval and placed as a rule about the middle of the parasite. It stains very faintly and contains as a rule near the periphery a compact, deeply staining chromatin mass. Microgamatocytes slightly smaller than nucleus pushed to one side and flattened by the parasite which entirely occupies the short diameter of its host-cell; at either extremity are numerous chromatoid granules. This leucocytozoon of the red grouse appears to differ from the leucocytozoa parasitic on the turkey and guinea-fowl described by Laveran and Lucet and by Neave respectively, and since we consider it to be a hitherto undescribed species we propose to call it *Leucocytozoon lovati* after Lord Lovat, chairman of the Commission upon Grouse Disease.

THE CLINICAL SIGNIFICANCE OF ALLOCHIRIA.[1]

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DURING the past two years I have had the opportunity of making a detailed investigation of some cases of allochiria, a complete study of which will shortly be published, together with a full discussion of the pathogenesis of the condition. The fact that this paper is therefore merely a preliminary communication containing a summary of the results of the above study is advanced as an explanation of any appearance of dogmatism in the remarks that follow. Only the clinical significance of the condition will be considered, as the subject of pathogenesis would need a lengthy exposition.

In spite of Professor Janet's remarkable essay, which has not yet received the attention it deserves, it may be said that the views held on the subject by most neurologists can be summarised in the following statement, which is taken from the most complete modern text-book we have—namely, Nothnagel's "Specielle Pathologie und Therapie": "Allochiria is a defect in localisation, whereby a patient refers a cutaneous stimulus to the corresponding contralateral point; it occurs in a large number of diseases, notably tabes and hysteria, and is of no value in diagnosis." How inexact is this account of the condition will be seen presently.

The symptom first described by Obersteiner under the name of Allochiria refers to two entirely different conditions, which hitherto have not been differentiated from each other by any writer. The one, which may be called "false allochiria," is an instance of the localisation defect known as allocæsthesia. The other, for which I have proposed the designation "Dyschiria" or "Dyschirognosis," is an instance of psychological disaggregation and comprises three distinct varieties, of which true allochiria is one. In addition to these the terms "electromotor allochiria" and "reflex allochiria" have been applied by Weiss to conditions in which a unilateral stimulus evokes either a bilateral or contralateral motor response. There is no reason whatever why the term "allochiria" should be used in this connexion and I shall not mention the conditions further. One might just as soon call the consensual reaction of the pupil to light allochiria, particularly if the direct response is abolished, as happens in lesions of one third nerve.

I shall first give a brief description of false and true allochiria with their distinguishing characteristics and shall then consider their clinical significance. In allocæsthesia there is erroneous localisation of cutaneous stimuli, which are referred by the patient to points more or less distant.

[1] A paper read at the International Congress of Neurology and Psychiatry, Amsterdam, on Sept. 5th, 1907.

These stimuli are referred usually to points on the same side of the body but, for a reason that we cannot consider here, a certain number are referred to the corresponding point on the opposite side. The symptom of false allochiria does not need any special designation other than the general one of alloæsthesia, for its significance and pathogenesis are identical with those of the latter condition. It differs clinically from true allochiria in respect to seven precise features. 1. In alloæsthesia only a certain number of the stimuli are referred to the contralateral side, usually less than 50 per cent. of them; in allochiria the stimuli are invariably referred to the contralateral side. 2. In alloæsthesia the symptom in question is merely an instance of the erroneous localisation that takes place in every direction, so that the error in transverse localisation bears an exact relation to the error in vertical localisation; in allochiria there is no error in localisation apart from the mistake in the side. In alloæsthesia a touch on the inner side of the ankle might be referred to the outer side of the ankle, to any point on the foot or leg, or to the opposite ankle; in allochiria such a touch would invariably be referred to the inner side of the opposite ankle and nowhere else. 3. In alloæsthesia there are disturbances of common sensibility — particularly hypoæsthesia—which are important factors in bringing about the erroneous localisation; allochiria bears no relation to any defect of cutaneous sensibility, though such defect may sometimes be present independently. 4. In alloæsthesia there may be hypoæsthesia or paræsthesia but there are never present the peculiar attributes that we shall consider in connexion with allochiria under the name of Phrictopathic Sensation. 5. In alloæsthesia hallucinatory sensations and polyæsthesia frequently occur; in allochiria this is not so. 6. In alloæsthesia there are no corresponding motor manifestations, except perhaps ataxy; in allochiria motor manifestations are at least as prominent and characteristic as sensory ones. 7. In alloæsthesia there are no corresponding mental symptoms and the patient's error is due solely to the fact that, on account of the peripheral defect, the mind receives imperfect information about the stimulus; allochiria, on the other hand, is essentially a mental manifestation in which there is a deficiency of the power of apprehending the feeling of "sidedness."

I shall add nothing to this brief account of the false or alloæsthesic allochiria beyond a few remarks later on the subject of diagnosis. Dyschiria however demands a fuller description. As was first pointed out by Janet, there are three distinct varieties of this condition, and these must be separately considered. There are, further, three manifestations of each variety—sensory, motor, and mental.

For the *first* variety, called "simple allochiria" by Janet, I have proposed the designation "Achiria." This term indicates that its essential feature is a defect in respect to the feeling of "sidedness" or "handness," which may be called the chirognostic sense. The three manifestations of this variety are as follows. First, sensory stimuli are perfectly appreciated and correctly localised with the exception of their side. They give rise to no feeling of "sidedness" whatever. It is not accurate to say that the patient is in doubt as to the side of the stimulus; he is quite sure that he has no idea on the subject and refuses to make any guess. The sensation experienced has certain peculiar qualities that will presently be mentioned. Secondly, if the patient is asked to carry out any movement with the limb in question he is unable to do so unless the limb is indicated in some other way than by the use of the words right or left; the reason for this is that he has lost the knowledge of the meaning of these words, either altogether or at all events when they are applied to the limb concerned. Thirdly, he is unable spontaneously to conceive the feeling of this limb and declares that he has no such part of his body.

For the *second* variety, called "complete allochiria" by Janet, I shall simply use the term "Allochiria," for it resembles the condition commonly defined under this term. The three manifestations of this variety are as follows. First, sensory stimuli applied to the affected side are invariably referred to the corresponding point on the opposite side of the body. This is done with an air of absolute conviction, so that, for instance, a patient affected with allochiria on only the right side feels no more certain that a touch is on the left side when it is applied on this side than he does when it really is applied on the right side. Secondly, if the patient is asked to carry out a movement on the affected side he invariably does so with the corresponding part of the opposite side, fully under the impression that he has carried out the movement correctly. This phenomenon has been given the name of "allokinesia," rather unfortunately, as I think, for so doing serves only to create an artificial separation between two aspects of what is essentially the same condition. Allochiria is neither a motor nor a sensory phenomenon, but a psychical phenomenon that has both motor and sensory manifestations. Thirdly, the chirognostic sense is altered as follows: In a bilateral case the patient can conceive of a given feeling of "sidedness" only when the opposite side is moved or stimulated. In a unilateral case he can conceive of the feeling of "sidedness" of an affected part only when he moves the corresponding part on the opposite side under the impression that he is moving the part in question; if he really moves the affected part, or if this is stimulated, he invariably gets the feeling of "sidedness" of the opposite part.

The *third* variety has been given the appropriate name of "Synchiria" by Janet. The three manifestations of it are as follows. First, a sensory stimulus evokes two simultaneous sensations, which are referred to the corresponding points on both sides of the body. Secondly, when the patient is asked to carry out a movement on the affected side he does so on both sides, though in so doing he gets only the feeling of "sidedness" of the affected part. Thirdly, the patient is unable, either spontaneously or when cutaneous stimulation is applied, to conceive the affected feeling of "sidedness" alone apart from the feeling of the corresponding opposite side, though he can conceive it when he moves both limbs under the impression that he is moving only the affected one.

On the introspective side there are many interesting matters in connexion with dyschiria, but the above-mentioned clinical features are sufficient to enable the condition to be recognised. As regards the distribution of dyschiria it may be general and bilateral, it may be unilateral, or it may concern only certain regions of the body. In a given part it may relate to all the functions of the part or to only some. Thus in the allochiric stage only painful sensations may be referred to the opposite side and not other sensations. These three varieties of dyschiria are three grades of the same pathological process, achiria being the most severe and synchiria the least. Probably any one may occur without the others, though it is true that achiria and synchiria have not hitherto been observed except in cases that at another period presented allochiria.

The last point that must be mentioned in this connexion is the peculiar nature of the sensation that a stimulus applied to a dyschiric part evokes. There are six characteristic features about such a sensation. First, it is abnormally persistent; a momentary touch evokes a sensation that lasts half a minute or longer. Secondly, its reaction time is delayed, being usually more than a second longer than that of a normal sensation arising under the same conditions. Thirdly, it is prevented by a simultaneous stimulus applied to any normal part of the body and is at once abolished by the subsequent application of any such stimulus; thus, if two touches are simultaneously applied, one on a dyschiric part and the other on a normal part, only the touch on the latter part is felt; and, again, if a normal part is touched while the patient is still feeling the persisting sensation that follows a touch on a dyschiric part he at once ceases to feel the abnormal sensation. Fourthly, it has a strong tendency to evoke an immediate motor response. Fifthly, it has a peculiar quality that the patient describes as a diffuse shuddering or tingling; this is always unpleasant, usually very disagreeable, and sometimes constitutes a horrible shudder. On account of this quality I have described it under the name of Phrictopathic Sensation. Sixthly, the feeling of personal ownership of the part stimulated is more or less gravely compromised. All these features are most marked in the achiric stage and least in the synchiric, as may be illustrated by considering the last one. In the achiric stage the patient can describe all the features of the stimulus as correctly as a normal person, but he is convinced that the point touched is not on any part of his own body and cannot understand how all the information about the stimulus reaches him. For instance, he might say "You are touching the back of a thumb with a blunt pin; it isn't my thumb and I have no idea where the thumb is." In the allochiric stage the part touched feels dead and as if belonging to the patient in only the vaguest way. In the synchiric stage two points seem to the patient to have been touched; the homolateral one feels strange, foreign and as if it were asleep, and the sensation has the other peculiar attributes mentioned above; the contralateral one feels

obviously a natural part of his own body and the corresponding sensation has no abnormal attributes.

Coming now to the question as to the value of these symptoms in diagnosis, let us first consider the false or alloæsthesic allochiria. This can be distinguished with certainty from true allochiria by means of the data given above. The only other matter I wish to refer to in this connexion is the fact that allochiria may be simulated by a peculiar irritable condition of the lowest afferent neuron system. In this hyper-excitable state, which is not very rare in tabes and in certain affections of the peripheral nerves, the patient experiences an indefinite number of hallucinatory sensations which he refers to various precise points on the surface of either limb. The condition is easily recognised by the fact that sensations are experienced independently of objective stimulation and are increased in vividness when the element of expectant attention is added, but, if the possibility of its presence is not borne in mind, it is equally easy for the condition to be mistaken for allochiria or at least for alloæsthesia. The clinical significance of this form of alloæsthesia is that of erroneous localisation in general so that I need not discuss it here. There is no doubt that the symptom is most marked in affections in which the articular excitations are impaired, and this is probably the reason why it is so often and so well seen in tabes.

The relation of dyschiria to diagnosis must be discussed from two points of view: first, the diagnosis of dyschiria; and secondly, the significance of dyschiria as regards diagnosis of the affection present. It is convenient to discuss separately the sensory and motor aspects of the former problem.

When it is observed that a cutaneous stimulus is referred to the opposite side it can readily be determined, as stated above, whether allochiria or alloæsthesia is present by a knowledge of the distinctive features of those conditions. The observation of the transference of sensation may not be made however and in this case the condition will be overlooked. Even when a patient's localising capacity is being tested it may not occur to the observer expressly to inquire as to the side on which the sensation is felt; this is especially likely in true allochiria when the patient localises every stimulus with exactitude and certainty. Further the allochiria may be present only in connexion with certain kinds of stimuli. The other two varieties of dyschiria are overlooked still more easily, especially as they are less known. In the achiric variety there is no transference of sensation and even if the patient is questioned as to its side he replies simply, "I don't know," so that the state of affairs will not be correctly interpreted unless the observer is aware of the existence of this variety of dyschiria. In the synchiric variety three sub-varieties occur, all with their special fallacies of observation. In the first and most advanced of these three the contralateral sensation is appreciated most distinctly, and if the patient mentions only this one the condition may be mistaken for allochiria, a serious prognostic error. In the second subvariety the sensations on both sides are appreciated with equal distinctness; the patient usually says that he was touched on both sides, but if he thinks only one touch has been applied he sometimes says he does not know which side was touched, and in this case the condition may be mistaken for achiria. In the third subvariety the homolateral sensation is the more distinct and if the patient mentions only this one the state of affairs may be thought to be normal.

On the motor side the possible errors in observation are much more important. The motor manifestations, unless analysed carefully, are easily interpreted as clumsiness and weakness. In a unilateral case, when the face, arm, and leg are affected, the resemblance to incomplete hemiplegia is very considerable. All the signs of supranuclear facial paralysis may be present, the gait is typically hemiplegic, and in direct tests of strength, such as with the dynamometer, the conscious effort produces such disproportionately slight results that the presence of paresis may readily be concluded. Again, in the synchiric variety the movements bear a decided resemblance to the synkinesic phenomena of hemiplegia.

It is hardly necessary to remark that all these fallacies can be avoided if the various conditions with their characteristic features are borne in mind.

The significance of dyschiria is totally different from that of alloæsthesia. Although the majority of writers have held that dyschiria, like alloæsthesia, is due to a defect in the excitations that reach the mind from the periphery, the evidence is overwhelming in favour of the view that it is due rather to an incapacity on the part of the mind to appreciate these excitations, which are themselves unimpaired. The following three arguments may be advanced in support of this view.

In the first place, no case of dyschiria has ever been recorded in which the presence of hysteria was excluded. 19 cases have been published of true allochiria; in 16 of these hysteria was the only nervous affection present; in the remaining three there was every reason to suppose, from the other symptoms shown, that hysteria was present in addition to the organic nervous affection. As hysteria is purely a mental affection and certainly is not associated with any defect in the peripheral afferent system, we therefore have strong grounds for supposing that dyschiria is likewise a mental phenomenon. In two cases of hysteria allochiria has been artificially produced during hypnosis, so that here we have positive evidence of its mental origin.

In the second place the remarkable specificity of the phenomenon is most suggestive of its psychical nature. The complete failure of the patient to apprehend the appropriate feeling of "sidedness" in connexion with a cutaneous stimulus contrasts sharply with his power of correctly appreciating all its other attributes, its quality, exact locality, &c. This failure on the one question of "sidedness" stands out absolutely in contrast with the retention of all the other capacities in the same connexion. Never in the hypoæsthesia of organic disease do we find a patient able to differentiate two pieces of cotton-wool of different degrees of coarseness, and localising a touch exactly except for the one fact that he feels it invariably on the opposite side of the body (allochiria), on both (synchiria), or on neither (achiria). The whole picture reminds one irresistibly of the other specific and highly specialised losses that are so characteristic of hysteria.

In the third place, the phenomenon exists only so far as conscious mental processes are concerned. Though the correct feeling of "sidedness" cannot be apprehended in consciousness in the normal manner, so that the various conscious defects occur as described above, nevertheless its presence in the mind is proved by its influence on habitual and automatic processes. The more conscious and volitional is the mental process concerned the greater is the dyschiric defect, while the more subconscious and automatic is the process the less is the defect.

We may therefore conclude that the phenomenon is always of psychical origin and that its presence is almost certain evidence of hysteria. Finally, the recognition of the dyschiric process may aid greatly in the analysis of the defects present and serve as a valuable guide to the discovery of the ultimate basis of the affection, thus proving an important step in that exact psychological diagnosis that underlies all scientific treatment of hysteria.

Harley-street, W.

A PRELIMINARY NOTE ON BOMBAY SPIRILLAR FEVER.

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Morphology.—The length of the spirillum varies within wide limits; forms from 7·0 μ to 80 or 90 μ are met with. The length of the ordinary individual cell is from 10 to 16 μ, the next most common length is from 26 to 32 μ, and the increase in size goes roughly in multiples of from 10 to 16. Very rarely smaller individuals, as short as 6 or 7 μ, are seen, but whereas this is the rule in the American spirillum (q.v.) it is exceptional in the Bombay form. The width is not greater than 0·5 μ and is generally less. The individual from 10 to 16 μ long may possess as many as six or seven curves, but there is no regularity in the number or excursion of the curves.

In fresh blood the organism is always of corkscrew shape but in films it appears in open curves and is often not more curved than a strand of cotton which has fallen to the ground. The aster or rosette arrangement generally depicted is never seen in natural blood or in vitro. Agglomeration readily takes place but is in the form of wisps or masses of tangled threads. Division takes place transversely, and in deeply stained specimens the dividing line between two daughter spirilla is

clearly seen as a gap or faintly stained area in the endoplasm reminding one of a node of Ranvier in a nerve fibril. In citrated blood some forms strongly suggestive of longitudinal division have been seen; the appearances are not due to interlocking of spirals (which is a common phenomenon), but the spirillum becomes thickened and heavily beaded and for a part of its extent is split up into two lashes. In fresh specimens two spirilla are sometimes seen tugging in opposite directions at the thicker fused portion which is common to both of them. Attempts to demonstrate an undulating membrane of flagella have invariably failed. Spirilla by their last dying movements will clear a space around themselves in a granular background accurately corresponding to their curves but there is no evidence of an undulating membrane.

The question of flagella is not so easily settled. When stained by van Ermengen's or Löffler's process, a terminal filament is seen to be present. This is described as a flagellum by some observers. The filament gradually decreases in size from the full diameter of the organism to the farthest extremity, but this is unlike a true bacterial flagellum which is of equal diameter throughout its whole length and is always much narrower than the body from which it proceeds. Again, the filament continues the original direction of the spirillum itself and generally accurately continues its curves also, but the true flagellum does neither.

I am strongly of opinion that the filament in question is not a flagellum but an empty and collapsed sheath. A similar process is seen when two spirilla begin to separate before division. The cytoplasm shrinks and the ectoplasm or limiting membrane becomes stretched and a clear space appears. The sheath end may remain collapsed after division and remain so when stained, or it may appear only as an artefact due to the application of the powerful astringents used in the staining process.[1] In sections the spirilla are seen massed in the blood-vessels or sparingly in the tissues in the neighbourhood of hæmorrhages. They have not been actually seen in the parenchyma of organs or phagocytosed by cells but this may be due to inherent difficulties in demonstrating so fine an organism in such positions. At the height of the fever the spirillum is abundant in all the organs but is present in very small numbers or more generally absent altogether in spleen smears.

The spirillum is capable of three different kinds of movement: (*a*) Rapid translation from one field to another which is an evidence of high physiological activity and disappears quickly in citrated blood and in the circulating blood just before the crisis. (*b*) Vibratory or thrilling motion. The organism maintains its corkscrew-like form but a thrill or shiver passes down from one extremity to the other. This movement is maintained for days and has been observed for nearly three weeks in vitro, becoming slower and slower as time went on. (*c*) An undulating or swaying motion which is the last sign of vitality.

When citrated spirillar blood is kept in vitro under varying conditions of temperature, light, &c., the process of decay is similar in all. The majority break up and disappear without undergoing any involution in form but in some cases solution is preceded by marked fragmentation and beading of the cytoplasm. In specimens stained by Romanowsky's method the beads stain a deep red like chromatin. Wisps of spirilla lie together in various stages of fragmentation and entangled in the mesh are deeply staining globular bodies (about 1 to 2 μ in diameter) the nature of which is unknown.

Cultivation.—This has not been successful. Spirilla have been recovered in the living state from the surface of dry agar as late as the tenth day. In citrated blood the spirilla live for varying periods (not later than the twentieth day in the author's hands). They appear to increase at first and then gradually to die out. Contamination with other organisms does not appear to affect the spirilla very markedly. Under the following conditions true multiplication results. The blood is citrated and centrifuged, the spirilla collect above the red cells; they are pipetted off, washed in normal saline and re-spun; the process is repeated a third or fourth time. The tubes are all set aside at room temperature in the ice box and after 24 hours a grey semi-opaque layer, like a "buffy coat," above the red corpuscles can be seen. If this is touched with a platinum needle it strings out like mucus and if examined will be found to consist of an enormous felted mass of spirilla. Under these conditions motility was lost after 48 hours and after that time they were incapable of producing the disease in a monkey.

Attempts have been made to keep the organisms alive by subculturing every day with fresh human serum, but though it appeared that some increase took place after the first transference there was certainly no increase in the subsequent subcultures. Other media have been tried without success.

To ascertain the fate of spirilla in the body of the bed bug (Cimex lectularius).—Monkeys and bugs were kept together in specially devised cages during the whole time that the former had spirilla in their blood. In these circumstances the bugs would feed readily and retired during the day to the "bug-traps," from which they could be removed. These bugs were kept and examined at varying intervals after their feed. The examination consisted of a careful dissection and separate smearing of all the principal viscera and salivary glands and the minute searching of stained specimens. In the first series several fed bugs were dissected daily up to the fourteenth day. Spirilla were found regularly up to the *fourth* day and not afterwards. In the second series the bugs were dissected in larger numbers (five or six a day) for 17 days. Spirilla were found as late as the *seventh* day. The following organs were scrutinised in almost every case: the upper alimentary tract, the lower tract with the rectum and cloaca, the anal glands, the Malpighian tubes, the salivary glands, the testicles, the vesiculæ seminales or the ovaries, and the ova in their several stages of maturation. It is important to note that in every case where spirilla were found they were always *in the upper alimentary tract and in the presence of fresh blood.* Bodies of unknown nature were found in the salivary glands and ducts of fed and unfed bugs. A short mycelial organism is often found in the internal organs. Flagellates were never seen.

To ascertain the occurrence of natural infection in bugs.—A series of 53 bugs were sent to me from the Arthur-road Hospital for Relapsing Fever at intervals extending over several weeks. These were generally caught at night and in many cases from the beds of patients during the pyrexial period—that is, at a time when the spirilla must have been present in the blood. The insects were carefully dissected and subjected to prolonged examination as above. In the stomach of *one bug only* were spirilla found and they were very few in number.

Transmission by bugs.—Bugs were fed on infected monkeys and then transferred to specially constructed cages in contact with a susceptible monkey. This experiment has been carried out six times and of these *the first monkey contracted the disease 11 days after first exposure to the bites of 30 fed bugs.* The monkey passed through an ordinary attack of the disease. None of the other five monkeys became infected though relays of fed bug were introduced at intervals. (They subsequently contracted the disease after ordinary subcutaneous inoculation, so that the failure was not due to their being immune.) Although all the experimental monkeys are kept in one room, though in separate cages, no case of accidental or "natural" infection has ever occurred during the whole series of observations (extending ever ten months). No monkey has ever proved to be naturally immune. It should be stated that three or four of the later experiments under the above conditions have been carried out in the inter-epidemic season in Bombay. Seasonal prevalence is a marked feature of relapsing fever in this city and very few cases occur during the hotter months of the year.

Animals experiments.—The following animals have been found susceptible to infection with the Bombay spirillum: monkeys, white mice, white rats, white rabbits, black rats (mus rattus), and brown rats (mus decumanus), and guinea-pigs in order of susceptibility. A goat has proved refractory on several occasions, though pyrexia was induced by each injection of spirillar blood. Pigeons are insusceptible. In wild rats a double infection of spirillum Obermeieri and trypanosoma Lewisi was often seen. In monkeys (when the blood is taken from a human source) the spirilla generally appear on the third day after inoculation, but there is some evidence to show that repeated passages through monkeys may reduce the inoculation period

[1] Dr. S. Rowland kindly made a careful examination of the spirilla in a fresh state for evidence of flagella with an oil immersion paraboloid. This instrument, by cutting off all focal light and giving powerful circumferential illumination, is specially adapted for revealing such minutiæ of structure. He saw no evidence of flagella.

to 24 hours and even under (18 hours). Out of seven monkeys carefully examined daily for relapse three showed reappearance of spirilla (on the seventh or eighth day after the crisis) in small numbers. The remaining four showed none up to the twelfth day. In white rats and mice and in some young black rats the infection has been well marked, as many as up to one spirillum to a field ($\frac{1}{12}$th oil immersion Zeiss, No. 4 Oc) but the other animals show very light infection, generally about one to 20 fields. In relatively insusceptible animals "watch-spring" forms are common; in these the organism is coiled tightly round a centre and is very inconspicuous. They are never seen in man or monkeys. The infection lasts in the smaller mammals for three, two, or one days according to the susceptibility of the animal. In the cases where relapses have been watched for they have not occurred in any animal except the monkey. Continued passages through wild rats have been tried but both series failed, although as much as one cubic centimetre of defibrinated blood was injected into the peritoneum.[2] In monkeys no special post-mortem feature was noted and on microscopic examination no changes beyond cloudy swelling, hyperplasia of lymphoid tissue, and punctate hæmorrhages were observed. None of the 42 monkeys experimented upon died nor did any appear seriously ill.

Experiment with serum.—By the repeated injection of spirillar blood into a monkey it was hoped that a serum of antitoxic or of spirillicidal potency would be obtained. The method of estimating the degree of this potency was by means of known dilutions of the serum made in Wright's pipettes and by the observations of the effect of the diluted serum on actively motile spirilla in freshly drawn blood. The monkey serum so prepared was found to have the following potency. It produced slowing and agglutination of the spirilla in a dilution of 1 in 20 in 15 minutes, with complete cessation and commencing lysis in one hour. A dilution of 160 produced partial paralysis of spirillar movement without lysis in one hour.

Action on man.—30 cubic centimetres of this serum were obtained from the immunised monkey and were used to inject a patient in the Arthur-road Hospital who had relapsing fever. The man began his first relapse at 6 P.M. on August 13th and on the third day (August 15th) after some preliminary observations to verify the presence of spirilla in the blood, &c., 20 cubic centimetres of the serum were injected intravenously. Hourly observations of blood count, pulse and temperature, and leucocyte counts were made, but until the evening the temperature remained high; the spirilla did not decrease or diminish, though the leucocyte rate rose. 22 hours after the injection and 64 hours after the beginning of the relapse the temperature fell from 104° to 97° F., and the leucocyte count fell from 40,000 per cubic millimetre to 8000, and thereafter the patient remained normal. There were no ill-effects and the second relapse failed to appear.[3] The brother of the patient, one year younger, admitted on the same day with relapsing fever and in the same stage, suffered fever for one day longer and subsequently went through a typical second relapse. It is impossible to draw any deduction from a single case but the result is encouraging.

By the kindness of Dr. Novy of Ann Arbor, Michigan, some specimens of the spirillum Obermeieri which he is investigating[4] were sent and also a small quantity of some highly immunised rat-serum was sent for trial with the Bombay spirillum. On examination of the American spirilla the writer and those in the laboratory who are familiar with the Bombay spirillum were all of opinion that there is an undoubted morphological difference between the two organisms. The American as compared with the Bombay spirillum is shorter in its actual elements and does not form such long aggregations. The shortest individuals are 8 μ and the next most frequent size is about twice that; very long forms from 40 to 60 μ are rare. It is also thinner and more delicate than the Asian form and does not stain so intensely. It does not tend so much to lie in open curves and figures but in typical spirals. The infection is numerically grosser than is met with in the Bombay animals. The American individuals do not tend to lie in wisps of from six to 20 as the others often do. Transverse division is much more plainly marked than in the Bombay organism and the individuals do not tend to remain in continuity so long. Novy's spirillum was stained carefully for flagella and appearances like those depicted by him were well marked. I look upon the terminal filament, in this as in the Asian spirillum, not as a true flagellum but rather as a collapsed sheath left empty by the shrinkage of the cytoplasm. (*Vide supra.*)

The examination of the blood serum sent was additional evidence of the dissimilarity of the two organisms. The serum was stated by Dr. Novy to be of the value of "probably but 100, or at the most 200, units per c.c.[5]" Under his directions, to 4·95 cubic centimetres of defibrinated normal rat blood was added 0·50 c.c. of the serum and the mixture was placed for two hours in an incubator at 37° C. to insure the addition of a normal complement. From this various dilutions of the serum were made with sterile normal saline from 1 in 10 to 1 in 2000, and these were allowed to act (in every case in the same volume) on fresh active spirillar blood. The continuous observation of these under the microscope with controls was conducted for over two hours, and until that time there were no slowing of activity, no rosette formation, no agglutination, and no lysis in any dilution. After 24 hours there was cessation of movement without agglutination or lysis in all the dilutions and controls. In other words, the American antiserum had no effect whatever on the Bombay spirillum. This may be due to one of three causes: (1) the serum may have lost its properties since it left Novy's laboratory; (2) a more specific complement may have been necessary than that supplied by the Bombay rat; or (3) the spirilla may be different varieties.

Investigation into an epidemic of relapsing fever at the Motlibai Hospital.—Under the direction of the Bombay Government a committee was formed (with Lieutenant-Colonel T. E. Dyson, I.M.S., sanitary commissioner with the Government of Bombay, as president and Major T. Jackson, I.M.S., and myself as members) to inquire into the prevalence of relapsing fever amongst the superior staff at the Motlibai Hospital. This hospital is affiliated to the J. J. Hospital and receives lying-in and gynæcological cases. The committee unanimously came to the opinion that the disease was spread in these cases by contact with the fresh blood of women who were admitted for abortion, miscarriage, &c. Many of these cases were in a high state of fever, their blood containing spirilla, and the abortion was a direct result of the disease. During the performance of the necessary treatment the medical officers and nurses contracted the disease possibly through abrasions or cracks which were thus infected with spirillar blood. In other hospitals to which many cases are admitted, but where fresh blood is not encountered at the infective periods of the disease, the menial staff (sweepers) are very rarely affected and the superior staff never.

In reference to the question of identity of the European (Obermeieri), American, Asian, and African spirilla (which has been called into question before and is emphasised by the present paper), it is interesting to note the difference of case-mortality. Rabagliati[6] states, under the head of "Prognosis": "In relapsing fever we know that the mortality is not more than 5 per cent." Dr. Choksy of the Arthur Road Hospital, Bombay, whose experience of the Bombay disease is perhaps unrivalled, has kindly supplied me with the figures of the case-mortality in that hospital for the last seven years. During that period in 3196 cases the average case-mortality was 38 per cent., and taking the annual figures showed a variation from 32 per cent. in 1903 to 43 per cent. of deaths in 1901.

Further investigation into the above and other aspects of the disease is being carried on, particularly with reference to the natural mode of its transmission and to the production of a curative serum.

My best thanks are due to Lieutenant-Colonel W. B. Bannerman, I.M.S., director of the laboratory, for frequent advice and assistance; also to Dr. Sydney Rowlands of the Plague Research Commission; and particularly to Khan

[2] White rats and mice are difficult to procure and still more to keep alive in Bombay, so although they undoubtedly are the most susceptible to the spirillum they have not been used.

[3] Novy has noticed in animals treated with antisera that even if the attack itself is not shortened the effect of the sera is to prevent the relapse appearing.

[4] Studies on Spirillum Obermeieri and Related Organisms, F. G. Novy and R. E. Knapp, Journal of Infectious Diseases, vol. iii., Nos. May, 1906.

[5] Novy and Knapp: Ibid., p. 348. "The unit which we employ may be defined as that amount of immune blood or serum which on simultaneous intraperitoneal injection with 0·1 c.c. of rich spirillar blood will just protect a rat 100 gram against infection."

[6] Professor T. Clifford Allbutt's System of Medicine, 1905 edition, article, Relapsing Fever.

Bahadur Choksy, M.D., of the Arthur Road Hospital, by whose courtesy constant access to patients was allowed.

Should it in the future be found advisable to specify the Bombay spirillum as a subvariety I suggest that it should be called "S. Carteri," as a tribute to the memory of Vandyke Carter of the Bombay Medical Service, whose monograph, "Spirillum Fever," remains to this day a monument of industry and scientific accuracy.

The following are the more important results obtained after a further six months' work on the above subject:—

1. It was found possible to transmit the disease from an infected monkey to an uninfected by means of repeated puncture from the former to the latter with a grooved needle. A similar result was obtained with freshly drawn infected defibrinated or citrated blood. The "artificial proboscis" experiment proves that spirillar fever can be conveyed without any developmental stage and suggests that if the infection is carried by insect agency the method is more likely to be by a soiled proboscis (as is probably the case in some trypanosome infections) than through the medium of a developmental stage.

2. It was found possible to transmit the disease to monkeys by feeding with infected blood. The dose required was rather larger than by subcutaneous injection and the incubation stage was prolonged by two or three days. Spirilla (whether specific or otherwise) have been seen several times in the urine of infected patients, but attempts to transmit the disease by injection of, or feeding with, this secretion have failed. These facts suggest the possibility of an alternative route in human epidemics and certainly opportunities are not wanting for such transmission amongst the native population.

3. A monkey was injected with blood from a patient who was in the apyrexial period and whose blood was proved to be free from spirilla. The monkey failed to develop the disease at the usual time but five days after the injection of the monkey the man had the relapse and the monkey a primary attack together; spirilla appeared in the blood of each and the disease ran its usual course.

This suggests that (*a*) the spirillum remains in the circulating blood in an unrecognised or ultra-microscopic form; (*b*) that the blood is infective during the apyrexial as well as the pyrexial period; and (*c*) that there is a definite cycle of development which comes to a crisis with the appearance of visible spirilla at definite intervals.

Bombay.

Reviews and Notices of Books.

Practical Physiological Chemistry (designed for Use in Courses in Practical Physiological Chemistry in Schools of Medicine and of Science). By PHILIP B. HAWK, M.S., Ph.D., Demonstrator of Physiological Chemistry in the University of Pennsylvania. With two plates of absorption spectra, four coloured plates, and 126 figures in the text. London: J. and A. Churchill. 1907. Pp. 416. Price 16*s.* net.

THE author states that the main point in which his plan of setting forth his subject differs from those previously proposed is in its treatment of the foodstuffs and their digestion. The subject of decomposition products of proteids, although it is impracticable to include its study in an ordinary course of physiological chemistry, is given in Chapter IV. (pp. 65–82), and a short chapter (pp. 139–47) is devoted to the examination of "feces" for the purpose of diagnosis. The author's plan, however, will be best understood by enumerating the order of the subjects: carbohydrates, salivary digestion, proteids and their decomposition products, gastric digestion, fats, pancreatic digestion, bile, putrefactive products, "feces," blood, and milk; epithelial, connective, muscular, and nervous tissues; urine (normal and abnormal), and quantitative analysis of urine, milk, gastric juice, and blood. We do not find much that differs from the subject as treated in English text-books of the same standard. The tests for carbohydrates and other groups are fully given under the head of carbohydrates and proteids. A useful blank chart is given in order to facilitate the student's review of the properties of the substances comprehended in these groups. There are also useful schemes for the detection of unknown substances in solution—e.g., carbohydrates, proteids; but we do not find one dealing with complex mixtures—e.g., of carbohydrates, proteids, and bodies of physiological importance.

The old classification of proteids is adhered to and in giving the technique of the colour reactions the author explains the cause to which they are due. There are some good drawings of crystals of edestin, excelsin, and the products of decomposition of proteids and of the fats. Fibrinogen is stated to be "perhaps the most important of the proteid constituents of the plasma"; serum-globulin and serum-albumin are regarded as probably not individual substances. The differences between blood plasma and blood serum are not properly stated at p. 150. The coloured figures of crystallised hæmoglobin are good and true to nature; we cannot say quite the same for the two plates of absorption spectra which preface the volume. Some of the methods in use in this country for counting the blood corpuscles and estimating the hæmoglobin are omitted. In the chapter on Muscle we think that the author is right in dividing his experiments into those (1) on living muscle and (2) on dead muscle. The long chapters on Urine (pp. 226–379) are much the same as in similar text-books. An appendix of about ten pages sets forth the chemical composition of the various reagents used. There is a good index.

On the whole, we think that the English student will not find any great advantage in the use of this work in preference to English text-books.

American Practice of Surgery: a Complete System of the Science and Art of Surgery. By Representative Surgeons of the United States and Canada. Editors, JOSEPH D. BRYANT, M.D., and ALBERT H. BUCK, M.D., of New York City. Complete in eight volumes. Profusely illustrated. Vol. I., 1906, pp. 818. Price 37, 8, or 9, according to binding. Vol. II., 1907, pp. 778. Price as Vol. I. New York: William Wood and Co.

THE vast extent of modern surgery is shown by the size of this treatise, of which two volumes are before us. This "Practice" claims to be purely American, yet only North America is represented; the publishers in their announcement say that "no foreign writers have been invited to take part in the work," but several of the articles have been written by Canadians. We fail to see any benefit in this limitation to one or two countries beyond the practical convenience which an editor would find in having his contributors within a reasonable distance. Probably the intention is an appeal to national sentiment.

The first volume begins with an account of the evolution of American surgery by Dr. Stephen Smith of New York. He divides it into three periods, during the first of which no medical schools existed, the second extended from the formation of medical schools to the introduction of anæsthesia and antiseptics, and the third period is still in progress. A readable account is given of the chief members of the profession from the early times to the present day. The more important surgical works also are mentioned and a brief summary is given of the main contributions to surgery made by American surgeons. Dr. Aldred Scott Warthin of Ann Arbor writes on Inflammation. We quite agree with him that it is unwise to attempt to limit the name inflammation to processes caused by micro-organisms. The process is essentially the same whatever the cause. Dr. Albert G. Nicholls of Montreal has contributed the section on Disturbances of Nutrition. His article is well written and fully illustrated with examples of hypertrophy and atrophy and other nutritional changes. The only criticism that we have to make is that pressure atrophy of bones is

not merely passive; the removal of the bone on which the pressure is exerted is effected by the setting up of a subacute inflammation in the bone so that a rarefaction results.

Dr. Nicholls has also contributed a valuable article on Tumours and Tumour Formation, though we must demur to one distinction made between granulomata and true tumours, for we are told that the granulomata can be traced to a definite cause, while a tumour is "due to no demonstrable cause." A "differentia" which depends on our ignorance cannot be of much importance. Dr. T. A. McGraw of Detroit has written an interesting article on Theories of Tumour Formation, and Dr. H. R. Gaylord has contributed a valuable account of the parasitic relations of cancer. Especially valuable is that part of it entitled "Characteristics of the Unknown Stimulus in Cancer."

Dr. J. C. Bloodgood's description of surgical shock is excellent. But on one point we are not fully in accord with him, and that is as to the temperature at which saline solution should be injected. It is most important that the body should not suffer any reduction of temperature by the injection, whether it be subcutaneous or intravenous. The temperature of the abdominal viscera is 100° F., and therefore it is not correct to say that the saline solution should be raised to a temperature between 100° and 105°, and then poured into a glass infusion apparatus with a long piece of rubber tubing. A fall of two or three degrees is sure to occur and the temperature of the infused liquid may really be below that of the body, a condition which must produce depression. Dr. J. D. Bryant's article on General Surgical Diagnosis is excellent, as might have been anticipated. The Radiographic articles are written by Dr. Preston M. Hichey of Detroit, Mr. W. J. Dodd, and Dr. R. B. Osgood of Boston, and especially would we commend the section on the interpretation of radiographs and that on the radiographic interpretation of the epiphyses. Dr. J. E. Moore's description of the general principles of surgical treatment contains a good account of the practice of aseptic surgery.

In the second volume Dr. V. P. Gibney writes on Tuberculosis from a Surgical Standpoint, and Dr. E. L. Keyes, jun., on Syphilis from a Surgical Standpoint. In the latter article the author attempts to distinguish syphilitic ulcers of the leg from varicose ulcers by the situation—a very untrustworthy guide. We cannot agree with him that "mercury by hypodermic injections is the surest, swiftest, safest treatment of the symptoms of syphilis." This statement is much too absolute. Why, too, does he speak of "the symptoms of syphilis" and not of the disease itself? Curiously, a little later the author speaks of "the inconvenience and danger" of hypodermic treatment. In Dr. D. W. Mongomery's account of the Surgery of the Diseases of the Skin we find a very good description of this portion of surgery and it is well illustrated. There are several other articles of interest in this volume and we may mention specially Surgical Diseases of the Lymphatics by Dr. C. N. Dowd of New York.

We may say that we have formed a high opinion of this work. The articles naturally vary somewhat in merit but we have not found one unworthy of its position in this treatise. We hope the succeeding volumes will equal those which we have already seen.

The World's Desires, or the Results of Monism. An Elementary Treatise on a Realistic Religion and Philosophy of Human Life. By EDGAR A. ASHCROFT. London: Kegan Paul, Trench, Trübner, and Co., Limited. 1905. Pp. 440. Price 10*s.* 6*d.* net.

THE volume before us is dedicated to Ernst Haeckel and represents an endeavour to apply the Haeckelian form of monistic philosophy to the problems and conditions of everyday life and thus to afford at once a philosophy and a religion to those who having regretfully lost their hold on the dualistic philosophies and revealed religions are yet altruistic at heart and desire an optimistic spur to endeavour. The fundamental basis of this philosophy is realism, its central and essential mechanism "the conscientious observation by the human senses of the complicated facts of the universe as interpreted by the nerve organisms." Such a religion, Mr. Ashcroft maintains, would be a progressive one, for by means of observation, empirical experiment, and objective reasoning it would incorporate and assimilate the advancing knowledge of mankind. It would at once discard all revelation and banish emotion and sentiment from the general religion. Perhaps the main principles may best be given in Mr. Ashcroft's own words: "The aim and object of philosophy and of its twin sister religion therefore in our realistic system, is the cultivation of a true understanding of the veritable conditions of human existence, so that this knowledge may be safely applied to the practical direction and guidance of the life of the individual and of the community; and with such ends in view to the determination from time to time of reasonable and tenable ideas and standards of ethics and practice for general and individual application; the whole being for the purpose of securing the happiness of mankind and promoting systematic development of the race to higher and higher things in due accord with its potential characteristics." Mr. Ashcroft recognises the limitations imposed on our knowledge of the universe by the limited capacities of the observing mechanism—the senses and by the finite limits of our reasoning powers, but he foresees the time when the application of the scientific method more thoroughly to the ordinary affairs of mankind will result in advances more rapid and utilitarian than even at the present time. When he allows his constructive imagination full scope and sketches forth a scheme of Utopian happiness to which mankind may at last attain on realistic lines, he writes with real enthusiasm; he confesses, however, that faith is a psychological attribute as necessary to the man of science as to the devotee. Like all monistic thinkers, Mr. Ashcroft is from the very nature of his philosophy an iconoclast, and though, like his master Haeckel, he is uncompromising, direct, and relentless in his opposition to any suggestion of dualism or of revelation, he is resolute to retain the ethical, the beneficial, and the altruistic features of existing creeds.

The book is divided into four parts. Part I. deals with the problems of human life and thought and here Mr. Ashcroft outlines the general principles of his realistic philosophy and its application to form a religion of realism. He points out that the realistic position is practically a development of that of Aristotle, the dualistic or theistic being analogous to that of Plato. He shows how in recent times Comte in France and Herbert Spencer in England have endeavoured to apply human knowledge to the instincts and desires of humanity, while the most complete application of monistic philosophy to this purpose is that of Haeckel, and thus he claims no novelty for his work which is to present in simple form the application of human knowledge in its present state to the physical and spiritual needs of man. Part II. is devoted to our knowledge of the material universe and deals with the nature, origin, and destiny of human knowledge. It contains an interesting presentation of our present knowledge of the cosmos, of the material sciences such as chemistry, physics, and astronomy, and of their relation to mankind and his organisation. It deals with the application of science to the needs of man, with the advances already made by applied science and those confidently to be expected. Part III. is devoted to the human organism and organic life and deals with some of the fundamental problems of biology, including the nature of life. The remainder of this part is devoted to a brief presentation of the anatomy and physiology of the human organism. This section is the one disappointing one, for in his desire

to be simple and elementary Mr. Ashcroft sometimes falls into error, making inexact and erroneous statements. Part IV. is entitled "The Human Soul," a term which he retains, defining it as "indicating all that vast world of thought and consciousness, emotion and will, which constitutes the real life of man and the higher development of which lifts him in so special a sense above the other denizens of the world." To its analysis, after considering the scope of the older schools of psychology, he brings the methods of the new experimental psychology and then applies them to the moral regulation of conduct. He discusses various systems of practical ethics, notably the Hindu, Buddhistic, Confucian, and Christian systems. He refers to Kant and his "categorical imperative," and then examines the principle of pure altruism, which affords the basis of his progressive system of ethics. In the concluding chapter of this section, entitled "The Human Outlook," Mr. Ashcroft considers the application of this "gospel of science and humanity" and its promise for the future.

Mr. Ashcroft's philosophy is noteworthy if for no other reason because it is constructive in its aims and not purely iconoclastic or negative like that of the agnostic and the blind fatalism of the pure materialist.

Green's Encyclopædia and Dictionary of Medicine and Surgery. Vol. III., Earth Burial to Gummi Indicum. London and Edinburgh: William Green and Sons. 1907. Pp. 535. Price 12*s.* 6*d.* to subscribers.

THE third volume of this important work contains 60 articles of more than 1000 words in length, over 100 articles of from 80 to 900 words, and 935 short articles and headings, varying in length from ten lines to a few words. Amongst the subjects considered we may draw attention to those of eclampsia, human embryology, epilepsy, the clinical examination of the eye, filariasis, the examination (physical, chemical, and bacteriological) of pathological fluid, furunculus orientalis, the gastro-intestinal diseases of children, general paralysis, and glycosuria, all of which are thoroughly up to date. The article on eclampsia, for instance, is excellent, the etiology of the affection being very thoroughly described. The symptoms and treatment are fully gone into. The article concludes with a description of the theories of thyroid inadequacy and of the placental or chorionic origin, so that the reader has here the whole subject brought up to date by Dr. H. Jellett. Sir John Halliday Croom, as was to be expected, writes lucidly on ectopic gestation, the treatment of this serious affection being most explicitly laid down accordingly as it has to be carried out before rupture, at the time of rupture, after rupture, or after suppuration, and so on, of the fœtus. To Dr. J. W. Ballantyne has been intrusted the article on embryology and he has handled the difficult subject in an admirable manner and illustrated it by some excellent plates. Very useful remarks and methods will be found under the heading of enemata. The late Dr. A. L. Gillespie writes on enteroptosis. The subject of epidemiology has been considered by Dr. A. Davidson who details the methods of studying the subject and considers the whole matter under the heads of (*a*) epidemic movements, embracing here the secular mutations, the multiannual fluctuations, the epidemic or short period waves, the seasonal fluctuations, and oscillations; (*b*) the law of anticipation; (*c*) the association and antagonism of epidemic diseases; and (*d*) the evolution and involution of epidemics. We find, also, a very concise but complete section on expectoration. One of the best articles in the volume is that by Mr. W. Adams Frost on the clinical examination of the eye, which embraces the examination of all the different structures of this organ in a very comprehensive manner. The attention of the reader may also be directed with advantage to the article on the examination of the fæces. Mr. Alban Doran, as was to be expected, contributes an excellent account of the affections of the Fallopian tubes in his usual lucid style. The article on filariasis by Dr. G. H. F. Nuttall is the most thorough exposition of this subject that we have read; it is illustrated by some excellent drawings of these parasites; the pathological effects produced are succinctly described and the various species of filariæ are enumerated and described. The student will also find in the section on the examination of pathological fluids by Dr. T. H. Milroy and Dr. D. A. Welsh all the important facts of this subject. Dr. R. W. Felkin writes on oriental sore; the relationship of the Leishman-Donovan body is alluded to, thus bringing the subject up to date. The author, however, has not mentioned the treatment that has been found very successful on the North-West frontier of India—namely, that of covering the sore with a thin sheet of lead just embracing the lesion. This is by far the best method of treating these obstinate sores. Such are a few of the subjects treated of in this volume, space alone forbidding us to allude to more of the articles. When completed the work will form a valuable addition to the library of the physician or surgeon.

The Dispensatory of the United States of America. By Dr. GEO. B. WOOD and Dr. FRANKLIN BACHE. Nineteenth edition. Thoroughly revised, largely re-written, and based upon the Eighth Decennial Revision of the United States Pharmacopœia. Philadelphia and London: J. B. Lippincott Company. 1907. Pp. lxii.–1947. Price £1 11*s.* 6*d.* net.

THE first dispensatory was published in 1833; since that date the work has received full legal recognition. The present edition comes opportunely, in view of the great interest that is being taken in the question of the purity of foods and drugs in the United States at the present time. The compilation represents the expenditure of much labour, skill, and care that must necessarily be bestowed upon a standard work. The editorial staff includes the recognised authorities in the United States on the various subjects treated. To Professor H. C. Wood, professor of materia medica and therapeutics in the University of Pennsylvania, has been intrusted the task of revising the sections on botany and materia medica with the uses of the drugs and preparations; to Professor Joseph P. Remington, professor of theory and practice of pharmacy in the Philadelphia College of Pharmacy, the section on pharmacy and pharmaceutical preparations; and to Professor Samuel P. Sadtler, professor of chemistry in the Philadelphia College of Pharmacy, the sections on theoretical chemistry and toxicology. The preparation of the index of diseases was undertaken by Dr. H. C. Wood, jun., and the article on Serum Antidiphthericum was contributed by Dr. M. S. Rosenau, director of the Hygienic Laboratory of the United States Public Health and Marine Hospital Service. To these should be added the name of Dr. Albert B. Lyons of Detroit, who assisted directly in that part of the revision concerned in bringing the chemistry of the alkaloids into line with modern research.

The work is divided into three parts, Part I. containing the discussion of all the remedies recognised by either the United States or British Pharmacopœias, Part II. dealing with non-official drugs and preparations, while in Part III. are considered the tests and test solutions of the two Pharmacopœias, weights and measures, the art of prescribing, and other matters relating to pharmaceutical work. This part includes also the National Formulary in abstract. The arrangement throughout is alphabetical, although there is a very complete index.

Altogether this dispensatory is a monumental piece of work which reflects great credit on all those who shared the enormous task of its compilation and revision.

The subject-matter is thoroughly up to date and the pages are singularly free from printer's errors. The present edition thoroughly maintains the standard of its predecessors and forms an excellent and a comprehensive work of reference on all that pertains to pharmacy and the collateral arts.

LIBRARY TABLE.

Das Dysenterietoxin. (*The Toxin of Dysentery.*) By Dr. ROBERT DOERR. With two Graphic Curves in the text and a Plate. Jena: Gustav Fischer. 1907. Pp. 75. Price 2.50 marks.—This work gives us a very complete *résumé* concerning the bacillary toxin of dysentery. The author has come to the following conclusions. The bacilli of the disease of the Kruse-Shiga type secrete a true soluble toxin, whilst those of the Flexner type do not. By extraction in a solution of common salt from fresh agar cultures and subsequent filtration a highly toxic solution is formed, and in this the intensity of action of the toxins is dependent on the one hand on the nature of the source from which it is obtained, and on the other on the degree of alkalinity of the culture medium, whilst the amount of toxin present shows a certain parallelism with the reaction of the latter—that is to say, that the greater the alkalinity of the culture fluid the greater the amount of toxin. Another point determined was that the formation of the pellicle is at the same time an indication of a rapid formation of toxin. The latter likewise is seen not to be affected by heat to the extent of withstanding for an hour's duration a temperature of 70° C., but is quickly destroyed when the latter reaches 80° C. It suffers no harm from trypsin, bile, or the succus entericus. Mineral acids remove the toxicity from filtered bouillon cultures, but if these be neutralised by alkalies the toxicity again becomes evident. This toxin of dysentery was found to affect strongly rabbits, cats, dogs, and monkeys, whilst guinea-pigs, white mice, fowls, and doves were refractory to it. Again, with susceptible animals the author often found that after intravenous, subcutaneous, or intraperitoneal injection a hæmorrhagic and necrosing inflammation of the mucous membrane of the intestine followed the secretion of the poison by the latter, whilst there were certain constant lesions of the nerve centres to which after receiving the corresponding dose the animals succumbed. The most suitable animal for experimental research is the rabbit, which reacted in one-third of the cases experimented upon, showing a hæmorrhagic-diphtheritic typhlitis, the small intestine, however, not showing any lesion, similar to cases in men. The secretion of the poison takes place through the gut and in a less degree through the kidneys but no evidence of the poison being secreted by the liver could be ascertained. The bite of animals showing marked symptoms of poisoning by the toxin was always atoxic. Lastly, the occurrence of experimental typhlitis was found to be quite independent of the entrance of the bile into the intestine. The results shown above are the outcome of a laborious amount of honest work. The author has given us a valuable addition to the literature of the subject on which he has written.

Medical Diagnosis: a Manual for Students and Practitioners. By CHARLES LYMAN GREENE, M.D., Professor of the Theory and Practice of Medicine in the University of Minnesota, &c. With seven coloured plates and 230 illustrations. London: Rebman, Limited. 1907. Pp. 683. Price 13*s.* 6*d.* net.—It is rather difficult to criticise this book, as its contents do not entirely correspond with its title and it is therefore open to blame for failure to carry out its implied promise, while at the same time it deserves praise for its actual merits. Frankly, it is not quite what we expect in a book which professes to be concerned only with diagnosis; it deals with diseases *seriatim* as do most textbooks of medicine, rather than grouping the phenomena of diseases under symptoms as they present themselves to the physician and analysing the varied conditions which may underlie these outward signs. Etiology, morbid anatomy, and symptoms are all considered, though rather more space is given to diagnosis than is often the case. As a manual of medicine for students, and indeed for practitioners, the book has merits of its own. It is packed with information, generally conveniently arranged, and reference is facilitated by headings in dark type and by the use of italics for important statements. There are in addition marginal notes of the contents of paragraphs, which are often useful, though we doubt whether much is gained by such a sign-post as "a ghastly clinical picture," which we find as the only marginal note on one page. The style is generally clear. Here and there, however, we meet with solecisms such as "emphysemae" and "a phenomena," and compression is sometimes carried to such a point as to make a sentence almost unintelligible so that we feel that we are reading a précis rather than a treatise. Still, the total result is a book which may be distinctly useful to those about to undergo an examination in medicine.

Sea-Sickness, its True Cause and Cure. By H. NORMAN BARNETT, F.R.C.S. Edin. London: Baillière, Tindall, and Cox. 1907. Pp. 39. Price 1*s.* 6*d.*—This is an interesting and valuable little book, although its conclusions are not so new as the author apparently supposes. That sea-sickness is due to the loss of the sense of position which is in some way connected with the semicircular canals was taught in at least one medical school some 25 years ago and the bromides were recommended for the prevention of sea-sickness in a letter from Mr. H. Saunders which was published in THE LANCET of June 14th, 1879, p. 867. But although, as we have said, the theory of sea-sickness put forward by Mr. Barnett is not new it is still none the less true and, as even now it does not seem commonly to be recognised, we think he has done the profession service by bringing out the book before us.

Lehrbuch der Anorganischen Chemie. (*Text-book of Inorganic Chemistry.*) By Professor H. ERDMANN. Fourth edition. Brunswick: Friedrich Vieweg und Sohn. 1906. Pp. 796. Price 15 marks.—The feature of this fourth edition of a well-known German text-book is the care which the author has taken to include a quite modern account of recent researches on the rare gases of the atmosphere and of radium. Otherwise the presentation of principles and facts remains the same and we still entertain the favourable opinion of the author's manner of dealing with the subject which we expressed when reviewing previous editions. The book is admirably illustrated and contains also tables of logarithms and the disposition of elements in accordance with the periodicity of their functions.

JOURNALS AND MAGAZINES.

The Scottish Medical and Surgical Journal.—In the September number of this journal Dr. W. B. Drummond gives a thoughtful review of the work of the recent Congress on School Hygiene and discusses some of the problems raised as they affect Scotland in particular. His advice is so to organise the system of medical inspection of school children that the local authorities may not be tempted to offer illusory salaries to part-time officers already in practice. Dr. D. Barty King writes on Muco-membranous Colitis and endeavours to classify the conditions found in this group of affections, and Dr. A. Dingwall Fordyce continues his article on Infant Feeding, dealing with cow's milk in the light of recent researches on its coagulation. Dr. B. P. Watson records a case of repeated abortion due to syphilis, in which treatment with potassium iodide was followed by the birth of a child with congenital goitre; he notes the cases already on record in which this condition followed the administration of potassium salts but concludes that the goitre is probably due to some maternal toxæmia.

The Dublin Journal of Medical Science.—In the August issue of this periodical is contained the annual report of the Rotunda Hospital for 1905–06, compiled by Mr. E. Hastings Tweedy, Dr. Arthur Holmes, and Dr. R. J. Rowlette. It offers as usual material for study by all obstetricians. Dr. Charles Greene Cumston of Boston reports a case of acute metastatic gonorrhœal myositis and discusses the diagnosis and treatment of this rare affection which is scarcely mentioned in many text-books. Dr. Charles T. Costello writes on blackwater fever but comes to no certain conclusion as to its etiology, though he suggests that it may be due to some special parasite.

The Birmingham Medical Review.—In the July issue of this review is published a Presidential address by Dr. Robert M. Simon to the Birmingham and Midland branch of the British Medical Association in which he discusses the subject of character and temperament and concludes that the brain and the thyroid gland are the only two organs of the body which directly influence them. Following this address is a severe criticism of the recent policy of the Association written by an ex-Vice-President under the title of "Medical Science *v.* Trades Unionism."

Guy's Hospital Gazette.—Useful articles are somewhat buried, as a rule, in the pages of the hospital magazines and we are glad to have the opportunity of calling attention to the first of a series of lectures on the Significance of Variation in the Constituents of the Urine, delivered by Dr. F. G. Hopkins and published in the issue of this gazette of August 24th. The subject of nitrogen excretion is dealt with and the meaning of the urea and of the ammonia in the urine is discussed with more appreciation of the real difficulties inherent in the chemical problems involved and of the uncertain nature of the results arrived at than is always evident in the writings of physiological chemists.

St. Bartholomew's Hospital Journal.—In the August number Surgeon W. Perceval Yetts, R.N., records a case of ascariasis—infection with lumbricoid worms—which presents points of interest. The number of parasites ultimately expelled was very large and the symptoms were suggestive of pernicious anæmia, the blood showing reduction in the number of red corpuscles, with megalocytes and poikilocytes present. There was no eosinophilia. The patient suffered from a neurasthenic condition which disappeared on expulsion of the worms by santonin.

New Inventions.

A NEW ASEPTIC SYRINGE FOR INDUCING LOCAL ANÆSTHESIA IN DENTISTRY.

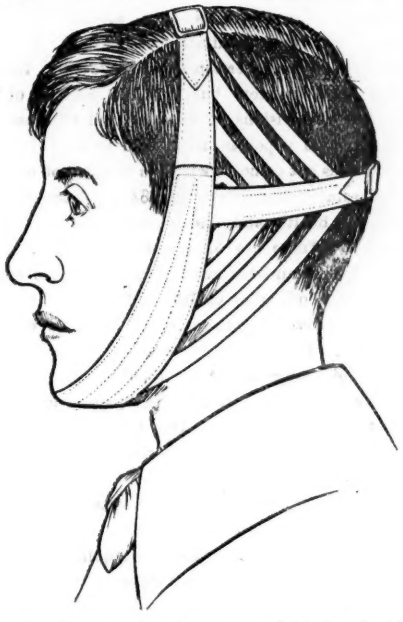
ALTHOUGH not a dentist, I am every year required to extract a very large number of carious teeth, and I have never been quite satisfied with any of the all-metal syringes for injecting local anæsthetics in these cases. I therefore asked Messrs. Allen and Hanburys, of 37, Lombard-street, London, E.C., to make one, and they have succeeded in producing what I consider to be a very perfect and efficient instrument. It is 3¼ inches in length, ¼ inch in diameter

and of 30 minims capacity. The piston is not one which is uniform in diameter throughout, but its lower inch is most accurately ground so as to fit exactly the barrel and entirely prevents any of the fluid used from "coming back" at the highest pressure required. Instead of the usual finger grips my syringe is fitted with rings for the index and middle fingers and also a ring for the thumb, as shown in the accompanying illustration, and I find practically that this is a very great improvement indeed, the operator having absolute control both as regards the pressure and the retaining of the needle firmly in its position in the gum. Moreover, it is impossible to let the instrument fall accidentally in any unusual circumstances which might occur. The needles, three in number, are of platinum iridium, about a quarter of an inch long and set in strong mounts of different shapes which screw on to the barrel of the syringe. The whole apparatus is beautifully finished and fitted in an aseptic metal case 6 inches by 2¾ inches by 1 inch, the price being 29*s.* 6*d.* complete with platinum iridium needles, or 25*s.* if steel needles are supplied.

Newtownhamilton, Co. Armagh. W. J. DAWSON, M.D. Dub.

A NEW EAR AND CHIN STRAP.

THE simple apparatus which is represented in the accompanying illustration is designed to aid in overcoming the mouth-breathing habit so common in children and others who have suffered from adenoids or other nasal obstruction. Every practitioner must have experienced the difficulty of teaching these patients to breathe properly through the nose after the obstruction has been removed. The apparatus consists essentially of an elastic webbing band about two inches wide, into which the chin fits comfortably, and which tapers upwards to form a narrower elastic strap which terminates in a buckle on the top of the head. Another similar strap is inserted into this vertical one slightly above the middle and passes to the back of the head just below the occiput, where it is fastened by means of another buckle. Two pieces of fine net, or the narrow diagonal elastic bands shown in the illustration, serve to strengthen the apparatus and assist in keeping it in place on



the head. It is usually only worn at night, but in the case of quite young children I often advise that it should be used also during a part, at least, of the waking hours, until the habit of breathing normally has been acquired. It is light and cool and comfortable, and produces just sufficient upward elastic pressure on the chin to make it easier to keep the mouth shut than open. Little children, I find, tolerate it well and will wear it while at play without making any attempt to displace it. It is also a very comfortable way of keeping prominent ears flat, or for holding dressings in the region of the ears in place. I use three sizes—namely, a small size for infants, a medium size for children from about five to 12 years, and a large size for adults.

The apparatus has been made for me by Messrs. Arnold and Sons, of West Smithfield, London, E.C.

Hornsey-rise, N. BRYAN REYNOLDS, M.B. Lond.

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 21, 1907.

Rural Sanitation.

EARLY in the last session of Parliament Sir JOHN DICKSON-POYNDER moved in the House of Commons for a return "of the medical officers of health and inspectors of nuisances in the rural districts of each county in England and Wales, showing the area and population of each district and, as regards each officer, the amount of his remuneration, whether repayment is made in respect of it by the county council, and whether he holds any other appointment or carries on any other occupation." This return has now been issued as a Parliamentary paper and it displays several of the pieces which form the curious mosaic that may be collectively described as our system (or want of system) of rural sanitation. It tells us that the appointments in question are made by the councils of 659 rural districts but that, on account of combinations and of divisions of districts and of cases in which more than one appointment is held by a single person, this number does not coincide with the number of officials. For the 659 rural districts there are 682 appointments of medical officers of health and 739 appointments of inspectors of nuisances. There are 30 combinations under the Public Health Act comprising rural districts for the appointment of a medical officer of health, and two comprising a rural district for the appointment of an inspector of nuisances. There are cases in which, without formal combination, officers hold more than one appointment, and others in which the officer for a formal combination holds additional separate appointments. In this way 64 medical officers of health act for 237 rural districts and one inspector of nuisances acts for two rural districts. When the qualifications and conditions of office of a medical officer or inspector are in accordance with the regulations of the Local Government Board, the county council is required to repay to the district council one-half of the officer's salary. Under this provision repayment is allowed in respect of 645 of the 682 appointments of medical officer of health for rural districts, and in respect of 656 of the 739 appointments of inspector of nuisances, or in 94·5 per cent. of the former and 89 per cent. of the latter. In four single rural districts the medical officers of health give their whole time to the duties of the office, and in 23 combined districts they do the same, either strictly, or in combination with other work of a public character. These 23 cases comprise 127 rural districts, but, with one exception, they also include urban districts. There are but 98 cases in which the inspector of nuisances gives his whole time to his duties. The return further shows that in 599 instances, including combinations, the medical officer of health holds some other public appointment, and that in 504 he engages in other work, usually in private practice. Among the inspectors of nuisances there are 597 instances in which the officer has other appointments, such as surveyor of highways, or building surveyor, under the same or some other council, and 140 in which he follows some private occupation.

The arrangements thus described in numerical outline work practically much as might be expected and in the manner only too well known to most of our readers. There is, as a rule, little or no recognition among rural councillors of the moral obligations of their official position, and WALPOLE'S maxim, *Quieta non movere*, expresses, also as a rule, their highest conception of their duties. They regard their health officers in most cases as our grandparents are said to have regarded children—that is to say, as creatures that should be seen and not heard. The councillors are usually men holding respectable business positions in the district, tradesmen or farmers, or in some similar station, able to read their favourite newspaper and to re-echo its views on local or general politics, but almost as ignorant as their own cattle with regard to the protection of the public health, or with regard to the public importance of insanitary conditions. They are slenderly endowed with imagination and are absolutely unable to realise the consequences likely to follow from leaving a case of infectious disease in one of a group of overcrowded and undrained cottages. They are sensitive to expenditure, especially to expenditure the objects of which they are unable to appreciate or to understand; and they have a deeply-rooted conviction that it is unneighbourly to devote too much consideration to the dunghills and other appliances of their own congeners in the vicinity. They have never seen a typhoid bacillus which they would suppose to be something visible and tangible, like a pigeon or a sparrow. They have never seen it go into the water of the village stream, they have never seen it emerge, and they have no assured belief in its existence. They individually would not like to be put to expense for the sake of rendering any cottages belonging to them fit for human habitation, and they wish to extend to other proprietors, and especially to their colleagues on the council, the same indulgence that they would expect to receive themselves. They are very tolerant of the medical officer of health so long as he meets them with a pleasant smile and keeps his duties as much as possible in the background. If he be not satisfied with this position and displays too much consciousness of the responsibilities of his office, he will receive a friendly private intimation that he had better hold his tongue, and if this be disregarded he will find that his practice suffers and that his re-election at the expiration of his term will be more than doubtful. As for the inspector of nuisances, the best way to hinder him from being meddlesome is to give him some more profitable occupation, and he is therefore permitted or encouraged to undertake other duties. We observe one case in which the inspector for two districts in adjoining counties, respectively of 95,873 and of 35,760 acres, and with populations of 9950 and 5803, being paid £55 a year for one of them and £30 for the other, but with no contribution from the county council in either case, is at the same time a actising veterinary surgeon and

farrier. Similar instances may be found on almost every page of the return.

Under such conditions as those which we have described all goes on smoothly for a time or until the mortality returns of the district show, perhaps in successive years, a remarkable prevalence of typhoid fever or of diphtheria or an infantile death-rate much in excess of the average for the county. The Local Government Board then takes note of the facts and sends down an inspector to ascertain the explanation of them. He makes a report which in the majority of cases he might make without investigation, so closely does one resemble all the rest. He finds overcrowding of dwellings upon area, overcrowding of inmates in dwellings, dwellings saturated with damp by reason of defective construction, an absence of drainage, an accumulation of fæcal matters in all sorts of places, a defective water-supply, an abundant contamination of that which exists, an absence of provision for isolating infectious disease, and a total neglect of cleanliness in dairies and slaughter-houses. These are the ordinary conditions which in each locality may be supplemented by others peculiar to itself. The report is published, is a nine days' wonder, and is forgotten, and things continue as before. There is no power anywhere to enforce the recommendations of the inspector and they are quietly ignored. Many of the reports contain references to earlier inspections of the same localities and say that the conditions then described are still existing. The medical officer of health not only has no authority but is liable to be displaced if he is what his council would describe as "troublesome," and the powers of inaction of the council are unlimited. There is probably less in rural than in urban districts of deliberate office-seeking for the express purpose of protecting nuisances and of preventing such laws as the Sale of Food and Drugs Acts from being carried into effect, but there is an amount of steady passive obstruction which only health officers themselves can realise to the full extent. In the meanwhile, the conditions of rural life are becoming as prejudicial to health as those of life in towns, and under a combination of noxious influences in both the health and the physique of the industrial sections of the community are suffering in the manner and degree recently set forth by the returns of the recruiting officers. The political exchange of votes for gabble goes on merrily, and schemers or visionaries are loud concerning projects of reform, while they leave untouched and unheeded the evils which are lying at their doors and which are certain, sooner or later, to entail due punishment upon the nation which permits their continued existence. The reform which is really needed, and which it would be the work of a true statesman to accomplish, would be to extend the protection of the laws to the thousands of poor and helpless who now suffer in health and strength from insanitary conditions which they cannot prevent and the existence of which they are frequently too ignorant either to recognise or to deplore. For this purpose the first necessity would be to give health officers security of tenure during good behaviour, to render them independent of other work, to combine districts in such a manner that needful expenditure should be spread over sufficiently large areas of taxation, and to commit, primarily to county councils and ultimately to the Local Government Board, the duty of making good the neglects and malfeasances of smaller and inferior authorities.

Membranous Colitis.

WE publish this week an interesting paper by Dr. E. H. HARRISSON upon Mucous Colitis, which affords a useful contribution to our present knowledge of the disease. Considerable confusion still exists in regard to the classification of diseases of the colon and there are many matters in dispute concerning their pathology. Recent researches have established the frequency with which the large intestine is the seat of disease, either primary, as in dysentery and ulcerative colitis, or secondary, as in tuberculosis, renal disease, and syphilis, while the part played by disorders of the putrefactive processes occurring in it in the genesis of various conditions of ill-health resulting from chronic constipation and stasis, though well recognised, is even yet imperfectly understood. Among the most interesting and at the same time most obscure conditions affecting the colon is that to which the names of mucous colic, mucomembranous or mucous colitis, and tubular diarrhœa have been applied. This disease has been variously regarded as an inflammatory condition—i.e., as a chronic catarrh of the mucous membrane, hence the application of the term colitis, or since, in at any rate some cases, no sign of inflammation has been discovered after death it has been regarded by LEUBE and NOTHNAGEL as a neurosis of secretion, or a "myxo-neurosis," to adopt the word invented by EWALD to describe the condition. More recently it has been suggested, among others by Mr. J. P. LOCKHART MUMMERY, that this condition has no claim to be regarded as a clinical entity, but that it is in point of fact a syndrome, or collection of associated symptoms found in a number of diseases of the colon of widely different character. In an interesting paper read before the Royal Medical and Chirurgical Society on June 11th, and published in THE LANCET of June 15th, Mr. MUMMERY gives a careful analysis of 36 cases of disease of the colon observed by himself. He points out that owing to the application of the electric sigmoidoscope to the investigation of these cases it is possible to study directly the condition of the lower part of the colon, and by such means he has been enabled to prove the existence of local inflammatory lesions in 24 out of his 36 cases. The condition most often seen was an injection of the mucous membrane with a granular appearance like that seen in granular pharyngitis. Irregular patches of whitish-yellow adherent mucus were often observed on the surface of the membrane. In seven cases there was in addition definite ulceration, the ulcers being irregular in outline and shallow with a granular base. In four cases there was a chronic hypertrophic catarrh associated with œdema of the submucous tissue, while in seven cases the cause of the colitis appeared to be the presence of cancer of the colon. Other conditions found in association with the colitis were acute pericolitis, uterine displacements, and appendicitis. Mucus was present in the stools in all the cases and in eight of them large mucous casts were passed. Mr. MUMMERY therefore concludes that mucous colitis is not a distinct disease and also that NOTHNAGEL'S explanation of the condition as a secretory neurosis is untenable. A study of Mr. MUMMERY'S cases, however, shows that many of them hardly conform to the clinical type of the condition usually known as mucous colitis; moreover, the greater number of his cases were in men,

while this condition is much more common in women than in men. His observations confirm the fact previously known that the passage of tubular casts may occur in association with actual disease of the colon, notably catarrhal conditions and cancer, and they suggest that such local lesions are probably more common than is supposed, but they can hardly be regarded as conclusively demonstrating that a condition of mucous colic does not exist apart from obvious local lesions, especially in view of the fact that in some fatal cases such lesions have not been found. The use of the sigmoidoscope in the investigation of these cases marks a distinct advance and will doubtless supplement the little that is at present known of their pathology if it is systematically used, and the results obtained correlated with the careful records of the necropsies of fatal cases of which but few are as yet on record. Indeed, the disease, apart from complications, appears to be but rarely fatal, which, as NOTHNAGEL suggests, is the reason of the differences of opinion existing. At the present time NOTHNAGEL'S classification of these cases into three groups seems best to conform to the facts known—viz., a group in which the abnormal formation of mucus is a neurosis of secretion without inflammatory changes; a second group with catarrhal changes in the mucous membrane, the mucus production being here also regarded as a superadded neurosis of the secretion processes; and a third group in which there is a chronic catarrh of ordinary character with occasional attacks of membranous diarrhœa, instead of continuous mucous secretion as in the second group. Dr. HARRISSON'S paper deals fully with the etiology of the disease and he touches upon the association existing between mucous colitis and appendicitis, about which there is considerable difference of opinion. By some appendicitis is regarded as a cause of the colitis, and removal of the appendix[1] has been suggested as one form of treatment; by others both conditions are regarded as the result of a common cause, while yet others, among them Dr. H. A. CALEY, regard the colitis as an important antecedent of appendicitis. Dr. CALEY[2] quotes DE LANGENHAGEN who saw among 1200 cases of membranous colitis only 16 cases of appendicitis, in 14 of whom the appendix had been removed without relief of the symptoms of colitis, while Dr. BOTTENTUIT has seen 22 cases of membranous colitis in which the symptoms were not materially relieved after excision of the appendix. A variety of conditions have been regarded as predisposing to membranous colitis; among these we may mention the "arthritic diathesis" which DE LANGENHAGEN regards as the basis of every case. The same observer insists on the frequent association of enteroptosis with membranous colitis. Dr. HALE WHITE attaches more importance to disorder of the female generative organs as an antecedent; no less than 21 of his 51 female patients suffering from membranous colitis had a history of some disturbance of these organs. In this connexion it is of interest to notice that membranous dysmenorrhœa has been observed in association with membranous colitis. Influenza is by some regarded as a cause of the condition; at any rate, colitis may be much aggravated by an intercurrent attack of that disease. With regard to the almost invariable association of chronic constipation nearly all observers are in agreement. The very frequent association of marked neurasthenic symptoms with the disease has led to a neuropathic theory as to its origin, but it is more probable that the neurasthenia is the result of the colitis, and this view is supported by the observations of DE LANGENHAGEN who found that in 304 cases with neurasthenic symptoms these had preceded the intestinal symptoms in only 16 cases.

We need only refer to Dr. HARRISSON'S paper for an exhaustive account of the symptomatology of the disease, and he deals thoroughly with its diagnosis and prognosis. He rightly lays important stress on the necessity of preventing fæcal accumulation in the large intestine as the first step in the treatment of the disease. This may be attempted by aperients, of which the best appears to be castor oil, given early in the morning and continued daily even for some weeks. Magnesium sulphate or calomel has been given where castor oil cannot be taken. Either as an adjunct to this treatment or as a substitute for it, systematic washing out of the colon with warm water or with tepid saline solution, even to the extent of several pints, is most useful. Some cases derive great benefit from treatment at certain continental spas where systematic irrigation is practised, notably at Plombières, Royat, Chatel-Guyon, and Homburg, the natural waters being used for purposes of irrigation. Similar treatment has been carried out at Harrogate in this country.[3]

Dr. HARRISSON concludes his paper by a brief description of the various attempts that have been made to give relief to some of the more chronic and intractable cases by surgical measures.[4] So long ago as 1880 HAHN in Germany operated on a case of ulcerative recto-colitis by colotomy successfully. During the next 15 years a few similar operations were performed by different surgeons with some success. In 1895 Mr. C. H. GOLDING-BIRD operated on a case of membranous colitis for Dr. HALE WHITE, and from that time similar measures have been frequently carried out. The chief operations performed have been colostomy of either the right or left side, with or without irrigation of the bowel, and appendicostomy. Short circuiting has also been done in some cases. Many successful results have now been recorded by one or other of these methods. Dr. HALE WHITE, who has followed the history of some of these patients, recommends that the fistula should be kept open for a year in severe cases. He is also of opinion that operation should but rarely be performed. The choice of cases for operation certainly requires great care and judgment. It should not be done in mild cases, or until careful trial of medicinal measures with a course of treatment by systematic irrigation at some suitable spa has failed, or in very chronic cases with marked neurotic symptoms.

[1] THE LANCET (Paris letter), May 25th, 1907, p. 1461.
[2] Brit. Med. Jour., 1906, vol. i., p. 1330.

Inquests and Preliminary Inquiries.

AT a recent inquest at Battersea Mr. TROUTBECK, the coroner for Westminster, made some observations with regard to the unsatisfactory nature of the law relating to inquests which have been widely reported and commented upon and which possess considerable medical interest. The principal point to which he called attention is not a new one, for his

[3] J. Liddell: THE LANCET, May 18th, 1907, p. 1357.
[4] A useful résumé is given in a paper by Ingersoll Olmsted in the Brit. Med. Jour., Nov. 10th, 1906, p. 1277.

complaint that many inquests are held in cases where this procedure is unnecessary has often been uttered before. In the case upon which Mr. TROUTBECK'S observations were made a child of poor parents had been born prematurely and had died owing to the lack of such nourishment and care as in other circumstances might have saved his life. Mr. TROUTBECK considered that if he had been empowered as coroner to order a post-mortem examination directly, and in this way had been able to satisfy himself that there were no evidence of neglect and no factors present in the case that called for investigation by a jury it would not have been necessary to hold an inquest. He appears to believe that in many cases expense to ratepayers, distress to relatives, and other disagreeable accompaniments of inquiries before the coroner might be avoided if the machinery provided by the Coroners Act, 1887, were better suited to its purpose. We are not impressed with this view for the reasons which seemed to influence Mr. TROUTBECK in his remarks, though in certain cases there would be no harm in the increased discretion which he seeks for coroners. The particular instance which served to call his attention to a state of affairs frequently commented upon was not fortunate for his arguments. In all cases where an infant has died without a medical certificate being obtainable the slightest suspicion of neglect or of other acts on the part of adults which may have conduced to the death renders the case a desirable one for investigation at an inquest, the holding of which, even if it entails no subsequent proceedings against anyone, should have a salutary effect in warning others and in stimulating public opinion towards prevention of the present waste of infant life. Apart from this, however, the suggestions of Mr. TROUTBECK and several of his colleagues are worthy of consideration and will no doubt be considered seriously whenever the law relating to death registration and the holding of inquests is consolidated and amended.

The point is a simple one. A coroner is not expected to hold inquests in all cases for which no medical man will give a certificate, nor does the granting of the certificate in any way deprive him of authority to inquire should he believe the death to be one fit for investigation. According to Section 3 of the present Act he is to hold an inquest when he "is informed that the dead body of a person is lying in his jurisdiction and there is reasonable cause to suspect that such person has died either a violent or an unnatural death or has died a sudden death of which the cause is unknown." Later in the Act he is given power to order a post-mortem examination, but this he may only do "either on his summons for the attendance of such medical witness or at any time between the issuing of that summons and the end of the inquest," there being no indication that whoever drafted the Act had any idea that a post-mortem examination might be desirable, except after an inquest had been decided upon. The contention of coroners who have a large number of deaths reported to them for which there are no certificates and who hold many inquests in the year in cases for which no one can be blamed, is that if they could order post-mortem examinations while suspending their decision as to the necessity for an inquest they might often be satisfied that the death was not one within the definition quoted above which limits their powers. We have not commented upon this definition; it may not be absolutely lucid in its wording or incapable of improvement, but it expresses fairly well that with which everyone agrees—namely, that certain deaths are not what are called popularly "natural deaths"; that when such a death may have taken place, or when, if we may amend the wording of the Act, there is "a death of which the cause is unknown," a public inquiry should place the cause of death, if possible, outside the realm of conjecture or suspicion. That there are many deaths to which the definition quoted does not apply, but with regard to which no medical man will grant a certificate, is equally agreed. A medical man, for example, practising among the poor may attend a patient and may become perfectly well aware that he is suffering from a certain complaint. The patient, however, may discontinue the services of his medical attendent, perhaps through poverty, and may die many months later, when clearly it would not be lawful that a certificate should be granted. If the coroner, then, had power to seek the opinion of the medical practitioner it would be to the effect that the cause was probably the complaint for which the deceased consulted him but that a post-mortem examination would put the matter beyond doubt. The machinery for such inquiry as that indicated would naturally include the payment of a fee to the medical man whose information enabled the coroner to arrive at his decision, and the fact that the medical man's time and trouble were given in obedience to the law and for a purpose appreciated and provided for by the legislature would do away with the friction now often caused by the informal and unauthorised questionings which are the coroner's only means of obtaining information necessary for the proper fulfilment of his duties.

While, however, we agree that the powers of the coroner should be increased by enabling him to order a post-mortem examination without binding himself to hold an inquest, and to seek from the medical man information which the medical profession alone can give in such circumstances, we have no desire to see any curtailment of the dignity or of the authority of the coroner's office. The responsibility of deciding that an inquest shall or shall not be held must still rest with him and there must be no risk of that responsibility being shifted on to the shoulders of the medical man who holds the post-mortem examination, whether he be a public official or one in private practice. It is, however, obvious that the coroner must not only be able to listen to or to read the medical man's report but must be capable of understanding it and of drawing correct conclusions if the decision arrived at is to be really his. In order to be able to give such a decision with authority the coroner must in all cases be a medical man himself additionally equipped with the legal training and experience necessary for the proper fulfilment of his duties. Under the existing law the properly trained medical man has been found to be the best and most efficient coroner. Under a system which required the holding or not holding of an inquest to depend largely upon a formal and searching inquiry and upon the proper and discriminating consideration of medical evidence a medical training should be the coroner's first and most necessary qualification.

Annotations.

"Ne quid nimis."

THE MEDICAL INSPECTION OF SCHOOL CHILDREN.

WE have received the following statement for publication from the Board of Education: "The Board of Education have decided to establish a medical department to advise and assist them in the discharge of the new duties imposed on the Board by Section 13 of the Education (Administrative Provisions) Act in regard to the Medical Inspection of School Children which local education authorities are required by that Act to carry out in England and Wales. The chief duties of the Board in this direction will consist in advising and supervising local education authorities as to the manner and degree in which those authorities carry out this medical inspection; in giving such directions as may be necessary regarding the frequency and method of such inspection in particular areas; and in considering and sanctioning such arrangements as may be proposed under the Act by individual authorities for attending to the health and physical condition of the children. The Board will also collect and collate the records and reports made by the authorities in the process of carrying out the new duties imposed by the Act, and will issue an official annual report on the subject. The organisation and *personnel* of the Board's medical department are not yet fully determined, but in view of the varied factors and influences which are concerned, directly or indirectly, with the health and physical condition of the children of the nation, it has been decided by the Board to establish the department on a broad basis of public health, and so organise its work as not only to allow of reasonable freedom for local authorities as to particular methods, consistently with securing an adequate degree of uniformity in the presentation of results for comparative purposes, but also to use as far as practicable the means and methods of sanitary administration already existing, and to develop and supplement these as may be found best for the increased requirements, rather than to supplant them or to bring new competing agencies into existence where this may be avoided. As a first step the President has appointed Mr. George Newman, M.D., F.R.S. Edin., D.P.H. Camb., as chief medical officer of the Board. Dr. Newman has been medical officer of health of the metropolitan borough of Finsbury since 1900. He is also lecturer on public health and sanitary administration in St. Bartholomew's Hospital (University of London), and has had the advantage of provincial experience as consulting medical officer to the county council of Bedfordshire. He has published various works and official reports upon matters of State medicine, both of a general and special character, including the control of the milk-supply, infant mortality and its prevention, infectious diseases and sanitation in schools, food poisoning, housing, water-supplies, and the physical condition of the people. Dr. Alfred Eichholz, who has for nine years been on the Board's staff as medical inspector of schools, and, in addition to his special work in the schools for blind, for deaf, for epileptic and for defective children, has had close experience of the medical, hygienic, and sanitary aspects of elementary schools generally, and of recent investigations into the national physique as illustrated thereby, will also be appointed to the medical department; and further appointments will be made in due course. The Board intend in the autumn to issue a circular to local education authorities regarding their new duties in the matter of medical inspection of school children." The Board of Education cannot expect that at least one of the appointments thus announced will escape criticism. Dr. Newman's excellent public work has not necessarily given him much first-hand experience of the kind that he will require in the discharge of his important and delicate duties.

THE INTERNATIONAL CONGRESS OF "GOUTTES DE LAIT."

THE Second International Congress of "Gouttes de Lait" was held in Brussels from Sept. 12th to 16th. The Congress was attended by over 600 delegates, including some 40 representatives from Great Britain. At the first Congress of Gouttes de Lait, which was held in Paris in 1905, the discussions were almost exclusively confined to the work of the "Goutte de Lait," an institution which is represented in this country by the infants' milk depôts that have been established by several of our municipalities. The scope of the Brussels Congress, however, was much wider, and included the whole question of the prevention of infantile mortality. It was decided that the scope of the future congresses should be similarly enlarged, and that the next congress, which is to be held in 1910 in Berlin, should be called the International Congress for the Protection of Infant Life. An account of the Brussels Congress will appear in a future issue.

SCIENCE "IN EXCELSIS."

"THE highest research station in the world" (writes an Italian correspondent) "was on the 27th ult. thrown open to the nature student of all nationalities on the Colle d'Olen (Monte Rosa) 3000 metres above sea level. The ceremony was honoured by the presence of the Queen Dowager (Margherita of Savoy) and the spokesman of the day was Dr. Luigi Pagliani, professor of hygiene in the University of Turin, who, in the presence of an audience representing the combined science of the continent, unveiled the inaugural tablet in the name of the King of Italy and declared duly open the istituto Scientifico Internazionale, which bears the title of its 'hero and eponymus' Angelo Mosso. Professor Pagliani's eloquent discourse was followed by that of Professor Sarasin, representing Switzerland, conveying the thanks of non-Italian nature students for the hospitality accorded them by the youngest of the European Powers; then came Professor Mosso himself, who felt in the inauguration of the istituto that he had put the appropriate crown on a long career devoted to Alpine exploration and research; and lastly spoke the Commendatore Grober, giving voice to the special acknowledgments of Germany. Thereafter the Queen made her progress through the rooms of the istituto, admiring the equipment of the various laboratories and passing words of commendation on the other appointments for the nature students in residence. Descending on foot (as became a veteran Alpine pedestrian) the Queen bade farewell on the Piazzale del Colle d'Olen to the distinguished company who, subsequently, to the number of 50, sat down to a banquet prepared for them in the Guglielmina Inn, the place of entertainment nearest to the istituto. Again the occasion inspired the orators of the party, some of whom dwelt with just and generous insistence on the humble collaborators of the institute—the masons, the carpenters, the whole *personnel* of the building and its equipment—who, after years of toil, amid storm and inclemencies truly Alpine, had seen their reward in the ceremony of the day. 'Science and labour,' said the Commendatore Grober, 'had worked loyally together in a spirit of the best augury for the future of humanity.' Then the company broke up, some to descend to the sub-Alpine plane, others to prepare for an ascent of Monte Rosa whose crest looked inviting—not to say defiant—to the more adventurous.

Since then the Congress of the Alpine Club of Italy has held its thirty-third meeting and before dispersing made a pilgrimage from its seat in Valsesia to the 'Angelo Mosso Institute'—again to admire the spirit that had conceived it, and the liberality and energy that had enrolled 'science,' as one of them remarked, 'among the peak-stormers.' Few events of the academic year, in truth, are more memorable than the opening of this loftiest of research stations—the characteristic supplement of twentieth century science to *hospices* of mediæval inspiration and erection, earning in a sense even more humane than the best of these the eulogy of the medical poet:—

> 'So tasked to smooth stern Winter's drifting wing,
> And garb the Eternal snows with more Eternal Spring.'
> (Temperat et boreæ rabiem mollitque pruinas,
> Et facit Æterno Vere tepere nives)."

WESTERN MEDICINE AND PLAGUE IN INDIA.

AN editorial article in the *Times of India* of August 24th assures us that so far as the Western portion of our dependency is concerned the old prejudice against hospital treatment is rapidly wearing away. Year by year the hospitals and dispensaries are more generally used; last year, for instance, the number of patients treated in the Bombay Presidency increased by 120,000. We are glad to know, our contemporary continues, that the Bombay Government fully realises that this increased confidence demands a corresponding improvement in the equipment of all hospitals, and especially in those of the Mofussil. Much has already been done and it is expected that before long all will be provided with the equipment necessary to enable civil surgeons to undertake operations hitherto not attempted. A good deal of hospital extension is now proceeding in Bombay and Poona and new hospitals are in course of completion at Karachi, Ahmedabad, Belgaum, and Alibagh. Three sets of x ray apparatus have been distributed and others will be supplied as funds permit. During the years of acute financial stringency Bombay hospitals suffered severely but Surgeon-General J. P. Greany, I.M.S., has set himself to the task of rehabilitation with indomitable energy and has been liberally supported by the Revenue Department. All this is pleasant reading but unfortunately in India, as elsewhere, there are two sides to every shield. "Perusal of the annual report of the Bombay Bacteriological Laboratory produces a sense of infinite depression." These are the opening words of an editorial article on another page of the same issue of the *Times of India*. The report tells us, the article goes on to say, that Haffkine's prophylactic has been brought to such perfection that wherever inoculation is practised it confers virtual immunity on the persons treated. Given a willing population it is as easy to control an outbreak of plague by inoculation as it is to combat small-pox by vaccination. These facts have been clearly established and yet people are resorting to inoculation less and less every year. The number of doses of the prophylactic issued from the laboratory last year was scarcely more than half the number demanded in 1905. The director, Lieutenant-Colonel W. B. Bannerman, I.M.S., thinks that this may be due to people holding aloof from inoculation in the hope that the Plague Commission may discover some more acceptable preventive. Our contemporary trusts that this may be the case but is not sanguine. The fear is expressed that the neglect arises from combined apathy and suspicion. The unfortunate attitude may change but there is no sign that it is likely to do so. The two articles from which we have quoted indicate a remarkable condition of things. On the one hand, we have a steadily increasing confidence in the efficacy of Western methods for combating disease; and on the other, we are confronted with a lamentable disruption of that confidence. It seems impossible to reconcile two such contradictory postulates and yet the facts are indisputable. The apparent discrepancy is due to ignorance and its offspring—suspicion. *Omne ignotum pro magnifico*. To the uneducated native of India plague is a new evil, whereas the other disabilities for the relief of which he is learning to rely upon Western knowledge have long been familiar to him. The only perfect remedy is education. Not until knowledge has become universal need we expect to meet with logical sequence in the conduct of affairs.

THE MEDICAL DEPARTMENT OF THE JOHNS HOPKINS UNIVERSITY, BALTIMORE.

THE medical department of this university is planned for the training of those who have received a liberal education, and a detailed account will be interesting to our readers just as the approach of October brings the subject of medical education closely before us. A collegiate degree in arts or science from a recognised university or college is necessary for admission. In addition to this the applicant must have a reading knowledge of French and German, with an adequate training in the preliminary scientific branches, such as chemistry, physics, and biology. The course extends over a period of four years, the term being eight months, from Oct. 1st to June 1st. The students proceed to the degree of M.D. Throughout the course special emphasis is laid on practical work in the laboratories and the hospital, which is regarded as an integral part of the medical school. In the first two years of the course anatomy, physiology, physiological chemistry, pharmacology and toxicology, pathology, and bacteriology are taken up. In the final years the hospital—both the wards and the out-patient department—is the class-room. Didactic lectures are few and instruction is given practically to small groups so far as possible. The fourth-year students spend a large part of their time working in the wards as clerks and dressers. Beginning with the session of 1907, some elective courses will be given in the final year, the student having certain freedom of choice in deciding which of the special subjects he will take. The courses for graduates are of two kinds: (1) special courses and (2) university courses. The special courses are usually given during May and June of each year to limited classes. They embrace courses in medicine (clinical work, classes in physical diagnosis, and clinical microscopy), operative surgery on animals, surgical pathology, pædiatrics, orthopædic surgery, genito-urinary surgery, x ray diagnosis, gynæcological pathology, cystoscopy, ophthalmology, and so on. These courses are practical as far as possible and are designed specially for general practitioners. The university courses differ from these in that they are given throughout the session. These are of two kinds—elementary and advanced. The former are much the same as the work being done by the undergraduates and are usually for periods of three or six months. In all of these the number who can be admitted is necessarily limited and applicants must satisfy the head of the department of their fitness to profit by the work. Thus elementary courses are given in medicine, pathology, bacteriology, physiology, gross anatomy, neurological anatomy, and physiological chemistry. For the advanced and research courses only those physicians are accepted who are prepared to undertake special studies and to spend sufficient time to make their admission worth while. Thus in medicine work may be done in the various laboratories of the medical clinic—e.g., the general clinical laboratory, the biological laboratory (which investigates biological methods of diagnosis and treatment), the physiological laboratory, and the biochemical laboratory. In the Phipp's dispensary there is a laboratory for the study of the problems of tuberculosis. In the pathological department courses on

special work, such as the pathology of the organs of special secretion, are given. A limited number of men are admitted for research work. In the anatomical and physiological laboratories a limited number of men are admitted for advanced work, as, for example, in the anatomy of the nervous system, embryology, and physiology. A similar course is available in physiological chemistry. In all of these the fitness of the applicant is decided by the head of the department.

SULLY PRUDHOMME.

DELICACY of health in childhood or serious illness in later life has often decided the destinies of men of genius. The weakly child often cannot engage in the calling of his father and the strong man, smitten down by prolonged sickness, must perforce content himself by following for the rest of his life the sedentary occupation of the student or writer. It is thus that Sully Prudhomme, trained in the exact sciences and destined at first to the career of an engineer, turned to poetry when a sudden succession of family bereavements and the horrors of the war of 1870 had shattered his nerves and left his sensitive frame a wreck. For 37 years, until his death in his garden at Châtenay on Sept. 7th, Sully Prudhomme, the erewhile man of science, the severely trained mathematician, built up his own poetic reputation and has died, leaving a literary monument, which, as a writer in the *Figaro* points out, is "l'un des plus nobles, en vérité, l'un des plus purement beaux dont s'enorgueillisse l'art français." He attained to fame while at times suffering the anguish caused by slow paralysis, coupled with occasional attacks of meningitis that threatened his life. Strange to say, a life of intermittent torture never once impaired the solid reasonableness of his poetic genius. Delicate and punctilious and truly poetic though his verse undoubtedly is, he remains the poet of reason, of the scientific outlook of modern intellectualism, and illustrates in a forcible degree the truth that between artistic imagination and latter-day science there is no necessary gulf of division. The exact sciences can boast few such types as Prudhomme, though medicine has been adorned indirectly by a Goldsmith, a Keats, and a Bridges.

THE BACTERIOLOGY OF PLASTERS.

IN the *Pharmaceutical Journal* of July 27th Mr. G. Pinchbeck gives the results of an investigation into the bacterial condition of plasters and the results which he has obtained are sufficiently disquieting to merit the attention of the medical profession. Mr. Pinchbeck has made a bacteriological examination of various commercial plasters and protective tissues that had been stored under different conditions. Ordinary adhesive plaster from a package frequently opened contained an average of 22 colonies per square centimetre and a specimen of soap plaster similarly stored contained 20. Adhesive plaster prepared with a rubber basis gave better results, an opened package containing seven colonies per square centimetre and a new unopened package being sterile. Medicated adhesive plasters with a lead, resin, or soap basis were found to be not sterile, chalybeate, belladonna, and cantharides plasters containing respectively 13, 53, and 160 colonies in the same area. But medicated adhesive plasters with a rubber basis gave better results; plasters medicated with capsicum, belladonna, belladonna with aconite, and opium containing respectively 5, 31, 2, and 17 colonies to the square centimetre. These samples, with the exception of the belladonna plaster, were all newly opened and newly opened packets of menthol and oxide of zinc plasters were found to be sterile. An examination of a number of "court plasters" disclosed a worse state of things. A sample of isinglass plaster stored in a tin that had been freely exposed contained 341 colonies to the same area, while samples of "tri-colour" plaster, after being carried in a vest pocket for three months, contained no less than 1420 colonies. This class of plaster is especially rich in bacteria, chiefly owing to the use of isinglass, gelatin, gum arabic, and honey in preparing the basis. These ingredients form excellent culture media and the subsequent exposure of the plasters to a temperature of from 50° to 60° C. serves still further to favour the development of spores. Such plasters are usually carried in a purse or wallet for instant use in case of cuts, but their bacterial impurity is so high that they are a source of positive danger. Mr. Pinchbeck found staphylococcus pyogenes aureus and albus, bacillus pyocyaneus, bacillus murisepticus, streptococcus pyogenes albus, and other organisms in this type of plaster. As regards protective tissues, Mr. Pinchbeck found that unopened packets of gutta-percha tissue were sterile, while an open packet contained five colonies per square centimetre. Goldbeater's skin contained from 24 colonies in an unopened packet to 310 colonies per square centimetre in an opened packet. Goldbeater's skin is prepared from the peritoneal membrane of the cæcum of cattle. It is liable to contain bacteria owing partly to its avidity for water but more particularly to the use of septic membranes or contamination during manufacture. Mr. Pinchbeck has clearly proved the necessity for exercising care in the selection of plasters which from many causes may convey septic infection. He has investigated the various methods available for sterilising plasters and has ascertained that the addition of an antiseptic substance to the plaster is an efficient method of sterilisation. Among the substances suggested are thymol, chlorbutyl alcohol, iodol, beta-naphthol, and methyl salicylate. A rubber basis is effectually sterilised by the addition of 0·4 per cent. of thymol or 0·6 per cent. of methyl salicylate. For "court plasters" Mr. Pinchbeck recommends 1 per cent. of phenol. But he rightly condemns the dangerous practice of moistening such plasters with the tongue before applying them to a cut. The rubber basis, prepared from pure Para rubber, is an ideal plaster medium. It dissolves or mixes with various medicaments, is free from irritating properties, and produces the most adhesive plaster known. The rubber basis is strong, neutral, fairly stable, and waterproof, and is certainly much superior to the various bases employed in making the official plasters. It should always be supplied on reels in order to expose as little of the surface as possible to the atmosphere.

THE CITY OF WESTMINSTER COUNCIL AND THE STREETS UNDER ITS CONTROL.

IN the *Times* of Sept. 17th appears a letter signed by four members of the Savile Club, one of whom is a medical man, referring to the condition of the roadway of Piccadilly in the early hours of Friday morning, Sept. 13th. In it occurs the following passage:—

> The road was being flushed at Hyde Park-corner, but the hill from the St. James's Club to Devonshire House had not been touched and was excessively slippery from the traffic of the previous day and from motor grease. No gravel was to be had and the sandbox opposite the St. James's Club was empty. The horses drawing the heavy market carts had terrible work; one horse in its struggles to get up the hill fell down and died. At times the whole width of Piccadilly was blocked by carts unable to get up the hill.

The letter goes on to state that the police say that the same scene occurs almost nightly and that they are powerless as the City of Westminster council is responsible for the state of the road. We have upon sundry previous occasions called attention to the unsatisfactory way in which the City of Westminster council manages the cleansing and gravelling of the roads under its care (*vide* THE LANCET, Dec. 13th, 1902; Jan. 24th, 1903; and Jan. 5th, 1907). In 1903 the excuse given was that no ballast for gravelling the roads could be procured. Piccadilly has been more or less a chaos since the beginning of July owing to the laying of

some telephone or telegraph cables. We see no reason why this work should not be carried on by a night shift as well as by a day shift, but there is some weird influence about roads which appears to make those responsible for their upkeep absolutely indifferent to the convenience of those who use them, to the pockets of the ratepayers, and to the sufferings of the unfortunate animals.

THE GOVERNMENT AND RESEARCH.

THE President of the Local Government Board has authorised the following researches under the grant voted by Parliament in aid of scientific investigation concerning the causes and processes of disease: 1. Further study by Dr. Sidney Martin, F.R.S., of the chemical products of pathogenic bacteria. 2. Bacteriological investigation by Dr. F. W. Andrewes of the air of sewers and drains. 3. Observation by Dr. W. G. Savage of the bacteriology of "garget" and maladies of the udder or teats of milch cows; and of the possible relation of sore-throat in the human subject to pathological conditions of the udder and teats of these animals. Also investigation by him of paratyphoid fever and its microbic cause. 4. Joint investigation by Dr. M. H. Gordon and Dr. T. J. Horder of the life processes of the meningococcus with a view to means of combating cerebro-spinal fever.

THE HYGIENE OF SCHOOL LIFE IN THE UNITED STATES.

Dr. Richard Cole Newton of Montclair, New Jersey, communicated to the section on hygiene and sanitary science of the American Medical Association at the last annual meeting an interesting paper on the Attitude of the Medical Profession toward the Hygiene of School Life.[1] Dr. Newton referred to the International Congress of School Hygiene, saying that it would be for the good of the race in the United States if such a conference were to be held in that country where, he averred, the present system of public instruction is constantly defeating its own ends and turning out invalids, cranks, and "bookful blockheads ignorantly read," simply for the want of a well-balanced curriculum of instruction which accords an appropriate place to physical education. Dr. Newton allows that excellent work in the direction of school hygiene has been accomplished in Chicago, Boston, and in other American cities, which makes it all the more regrettable that there is no scheme for amalgamating and systematising the work. Medical inspection of school children is fairly general in the United States and has received the unqualified approbation of the teachers who desire its extension, so that here at any rate an excellent start has been made, but other problems which trouble us in England are also presenting themselves across the Atlantic. The question of giving free breakfasts to poor school children leads Dr. Newton to point out that, so far as New York is concerned, an investigation by the board of health has disclosed the fact that some children went to school breakfastless, not because no food was provided but because they could not eat after the night spent in their ill-ventilated and overcrowded tenements. The Committee on the Physical Welfare of School Children also found that only 1·1 per cent. of 1500 New York children whose cases were investigated were not provided with some breakfast. Dr. Newton expressed the opinion that in order to provide the proper sort of physical instruction to school children a special class of medical men must be raised up, and here he went over much the same ground as was recently traversed by Dr. Nicholas Senn in the Jerome Cochan lecture recently delivered before the Medical Association of the State of Alabama. In this lecture the well-known American surgeon advocated the foundation of hygienic institutes "where young medical men can receive the necessary education and training to prepare themselves for the high and responsible office of sanitary or health commissioner in the different communities." Dr. Newton thought that a somewhat larger scope should be given to such institutes so that they might turn out the properly qualified director and instructor in the public and private schools. He proposed that a commission should be appointed in the United States which should have control over all matters connecting physical with scholastic instruction. In many respects the school children of the United States are better cared for from a physical standpoint than they are in this country. Medical inspection of school children is more or less the rule, and the principles of hygiene are taught in many of the schools. In New York City, for example, hygiene and elementary physiology have been taught in the public schools for some time. The flaw in the American system seems to be its lack of uniformity; in some States the methods of school medical inspection and teaching of hygiene are good, while in other States these methods are conspicuous by their absence. It is somewhat amusing, however flattering it may be to our self-esteem, that England should be quoted as a nation careful of the physical well-being of her poor school children. A new leaf has been turned now, but in the past perhaps nowhere in the world was the health of indigent young children more neglected than in England.

[1] Journal of the American Medical Association, August 24th, 1907.

EXPERIMENTAL ANÆMIA.

ALTHOUGH the clinical features of the various forms of anæmia are well defined their pathology still remains obscure. In the *Journal of the American Medical Association* of August 10th Dr. C. H. Bunting has published an instructive paper on experimental anæmia which throws much light on the subject. By injecting large doses of ricin or saponin into the veins of dogs and rabbits he produced a progressive anæmia and condition of blood exactly resembling that of pernicious anæmia. In rabbits, nucleated red cells, both megaloblastic and normoblastic, and characteristic changes in the non-nucleated cells (variation in size with a predominance of those above the average, poikilocytosis, polychromatophilia, granular basophilia, and an increased colour index) are produced. Even the leucopenia with relative increase of mononuclears may occur. In short, none of the features of pernicious anæmia are lacking. Moreover, a condition of bone marrow similar to that of pernicious anæmia may be produced—predominance of megaloblastic type of nucleated cells and of cells of the large lymphocyte type. The animals react with machine-like regularity to the poison. Each injection is followed by the production of nucleated cells and a fall in the number of red cells and their gradual assumption of the abnormalities mentioned above. This reaction is entirely different from that produced in animals by repeated hæmorrhage—a fall in the number of red cells without production of nucleated red cells. Megaloblasts are not found in the blood and normoblasts only occasionally. The colour index falls rapidly, the corpuscles become very pale, and the marrow shows the appearances characteristic of secondary anæmia, nucleated cells of the normoblastic type predominating. If the hæmolytic substances are injected not intravenously but subcutaneously or intraperitoneally the result is different. Hæmolysis is produced, blood pigment is deposited in the spleen, and the number of red cells is reduced, but the sharp nucleated-cell reaction does not occur in the blood, the fall in the number of red cells is less sharp, and the marrow shows the appearances of a secondary anæmia with characteristic predominance of normoblastic cells. Dr. Bunting thinks that

the difference between the results of large intravenous injections and subcutaneous injection of the poison is due to the fact that in the former case it is not entirely saturated by the red cells before it reaches the marrow, which therefore shows signs of direct injury in extensive necrosis of cells. That there is hæmolysis of nucleated red cells is shown by the presence of naked nuclei in the marrow and in the circulating blood. These facts may explain the differences between anæmias of the pernicious type and of the secondary type. In tuberculosis, for example, there is a constant but slow absorption into the circulation of substances destructive to the red cells but this is so gradual that the toxin is completely anchored by circulating cells which it injures or destroys, as shown by accumulation of blood pigment in the spleen. But the toxin does not reach the marrow in an uncombined state and therefore does not injure it. So far as the marrow is concerned the lesion is the equivalent of hæmorrhage. The marrow is able to repair the injury in a normal manner. On the other hand, in pernicious anæmia large quantities of hæmolytic poison gain entrance to the circulation and do not completely combine with the circulating cells and reach the marrow, impairing its function. Similarly can be explained the reason why in certain severe secondary anæmias the blood picture of pernicious anæmia is produced. It is only necessary to postulate a time when the pathological process of tuberculosis, for example, is so acute that the red cells (diminished in number) cannot absorb all the toxin and that some of it reaches the marrow. The abnormal forms of red cells found in the blood may be due to too hasty metamorphosis of the injured marrow in the attempt to supply the demand for red cells. There is, perhaps, a hasty transition from megaloblast to erythrocyte without the orderly progression through intermediate and normoblastic stages. The resulting cell is thus larger than normal and bears more hæmoglobin. The poikilocytosis and the discharge into the circulation of immature (nucleated) cells are other expressions of this faulty hæmatopoiesis. The source of the poison in pernicious anæmia appears to be the alimentary canal—a view emphasised by Dr. William Hunter.

THE TOWN COUNCIL OF SOUTHEND-ON-SEA AND ITS MEDICAL OFFICER OF HEALTH.

As will be seen by reference to another column the town council of Southend-on-Sea has concluded by 12 votes to 11 to dispense with the services of Dr. J. T. C. Nash. We shall be surprised if this conclusion does not offend the better-informed burgesses of the town, and we shall be still more surprised if the council escapes an open expression of disapproval from the Local Government Board. This is what the inhabitants of Southend-on-Sea have now to think of. The present medical officer of health is being dismissed because his attention to duty has brought him into conflict with members of the town council. We are convinced that no medical man is likely to take Dr. Nash's place and to subject himself to the chances of such treatment. Certainly no medical man of any position in his profession or any experience of sanitary affairs will apply for Dr. Nash's post. What will be the position of Southend-on-Sea if the town council appoints a medical officer not fitted by his special attainments for the post? And—we hardly like to make the suggestion that follows—what will be the position of the borough if the municipal authority finds a medical man ready to act not as a sanitary expert and adviser but merely as the obedient servant of the town councillors? This is what will happen to Southend-on-Sea. An irremediable stigma will immediately be attached to the name of the borough and its position as a health and pleasure resort will be damaged beyond measure. Dr. Nash's annual reports have been received by us regularly and we ask the inhabitants of Southend to read and to digest the meaning of these figures which give the death-rates at Southend-on-Sea from measles, diphtheria, and typhoid fever since Dr. Nash's appointment in 1901 as medical officer of health:—

Zymotic Death-rates at Southend-on-Sea, 1901–06 inclusive.

—	1901	1902	1903	1904	1905	1906
Measles	0·33	0·06	0·18	0·07	0·13	0·05
Diphtheria ...	0·40	0·77	0·10	0·04	0·08	0·09
Typhoid fever ...	0·33	0·35	0·29	0·04	0·17	0·04

Arithmetic will show that the rates have dropped from an average of 0·32 during the first three years to an average of 0·08 during the last three; and further arithmetic suggests that the saving of life thus implied in a population of more than 40,000 is very considerable. This improvement in the "zymotic" death-rate has been paralleled by the improvement in the general death-rate, and there can be no doubt that Dr. Nash's strenuous work in putting down sanitary abuses and inspecting food-stuffs, especially the conditions of the shell-fish trade, is responsible for the significant alteration in the mortality figures. Certain members of the town council have now decided to get rid of Dr. Nash and the inevitable conclusion to which the public must come is one that will go far to spoil the position of Southend-on-Sea as a health or pleasure resort.

SENILE TREPIDANT ABASIA.

IN the *Boston Medical and Surgical Journal* of August 15th Dr. E. W. Taylor has called attention to a peculiar disturbance of gait in elderly people, which was described many years ago by Charcot as "senile trepidant abasia" but subsequently attracted little notice. He reports three cases. A woman, aged 83 years, came under observation. Up to three years previously she considered herself well except for the natural infirmity of her years. At that time she began to notice a disturbance in walking, particularly in starting. When once started she could progress fairly well, but her first movements were difficult, particularly if she was embarrassed by the presence of anyone. Descending a flight of stairs had become increasingly difficult and at last impossible. The heart was normal and no definite radial sclerosis could be made out. The grasp of the hands was good. The knee-jerks were active but there was no plantar reflex. In general the patient appeared vigorous for her years. When standing and asked to take a step forwards she could do so only after much difficulty and "muscular stammering." Taking short and uncertain steps she progressed a certain distance with much effort. There was no spasm or ataxia and her gait could not be described as feeble. Certain exercises were prescribed which she followed with definite temporary improvement. Two weeks later she was distinctly better and could to some extent walk alone. She complained of difficulty in writing similar to that of walking. She could write only after much effort. She was seen again two years later and had grown more feeble. She complained of spasmodic twitchings of the legs at night which kept her awake. The reflexes were very active. The heart was arhythmic and feeble, the pulse was 100, and the radial artery was hard. She had given up attempting to walk. In the second case the patient was a man, aged 75 years, who had had difficulty in walking for about two years. He complained that he "couldn't handle his limbs which were like sticks." Occasionally sharp twinges of pain ran down the legs which he attributed to rheumatism. The knee-jerks were normal and the plantar reflexes were slight. The

strength of the legs was good. The heart was normal. He showed the same difficulty in starting and in progressing as was present in the previous case. In the third case the patient was a man, aged 72 years, who for some time had suffered from increasing difficulty in locomotion, especially in starting, and a tendency to shorten his steps more and more as he progressed. After going a few yards he was often obliged to stop from exhaustion. The heart sounds were weak and the radial arteries were much sclerosed. The knee-jerks were active. The pathology of such cases is obscure. In an exhaustive article on the disturbances of gait in the aged Petrén described this gait and attributed it to cerebral arterio-sclerosis. He thinks this produces a subjective feeling of difficulty of locomotion which causes the incapacity. This view is in keeping with the fact that by encouragement and instruction it is not difficult to induce the patients to walk with comparative ease.

THE AUSTRALASIAN MEDICAL CONGRESS.

THE eighth session of the Australasian Medical Congress will be held in Melbourne in 1908 under the presidency of Professor H. B. Allen, of the University of Melbourne, from Oct. 19th to 24th. The subscription is one guinea and will entitle every member to a copy of the Transactions of the Congress. The council of the University of Melbourne has granted the use of its buildings. The Government of Victoria has undertaken the printing of the Transactions. Addresses will be given in full congress by the presidents of the sections of medicine, surgery, pathology and bacteriology, and public health. Special meetings of the congress will be devoted to the following subjects: (1) the relations of the medical profession to hospitals; (2) syphilis. The work of the congress will be divided into the following 11 sections—namely, (1) medicine; (2) surgery; (3) obstetrics and gynæcology; (4) anatomy and physiology (with experimental pharmacology); (5) pathology and bacteriology; (6) public health and State medicine; (7) diseases of the eye, ear, and throat; (8) neurology and psychiatry; (9) diseases of children; (10) naval and military medicine and surgery; and (11) diseases of the skin, radiotherapy, and radiography. The general secretary is Dr. H. C. Maudsley, 8, Collins-street, Melbourne.

ANTIDIPHTHERIAL SERUM AND DIPHTHERIAL PARALYSIS.

SOME divergence of opinion has existed as to the relationship between the use of antidiphtherial serum and the occurrence of paralysis after the disease. When antitoxin was first introduced it was noted that the percentage of cases in which paralysis occurred was apparently increased, and there was some tendency to blame the new remedy for this sequel. It was, however, pointed out that the apparent increase in cases of paralysis was explicable on the ground that many severe cases of diphtheria which would have died in olden days were now saved by the antitoxin and lived to suffer from some degree of paralysis instead of dying outright. It has even been maintained by Comby that antitoxin, far from causing the paralysis, is actually a remedy of value even after this condition has supervened, and there is little doubt that early recourse to the remedy reduces the liability to subsequent affection of the nerves. Some recent experiments by Dr. M. J. Rosenau and Dr. J. F. Anderson, carried out in the Hygienic Laboratory of the United States Public Health Service,[1] throw further light upon the question. It seems that the guinea-pig suffers from a form of paralysis caused by the toxin of diphtheria which is almost exactly similar to that seen in mankind. In this animal a small dose of antitoxin given at the time of infection, or before it, suffices to prevent the occurrence of paralysis, but if 48 hours are allowed to elapse before it is administered then the remedy has no effect, nor can it influence the paralysis when it has actually developed. This is after all what might be expected, for the occurrence of paralysis depends upon degenerative changes in the nerve-fibres, a condition which is clearly beyond the reach of any antitoxic remedy. It may, however, still be argued that if antitoxin has not already been administered it would be well to give a dose even when the paralysis has appeared in order to neutralise any toxin which may still be circulating in the blood and which may aggravate the nervous lesion. Experience alone can decide how long any toxin may remain in the system unneutralised; but we expect that in most cases by the time paralysis has occurred the toxin has done its work and disappeared.

[1] Rosenau and Anderson: Bulletin No. 38, U.S. Public Health and Marine-Hospital Service. Washington, 1907.

EPIDEMIC CEREBRO-SPINAL FEVER.

IN London during the month of August there were 13 cases of epidemic cerebro-spinal fever notified, of which two each belonged to Shoreditch, Bethnal Green, Stepney, and Camberwell, and one to each of five other boroughs. In Scotland during the week ended Sept. 14th there were ten deaths from this cause registered in Glasgow, six in Edinburgh, and two in Dundee. In Glasgow the weekly report issued on Sept. 13th showed that there were at that time 29 cases under treatment. In Belfast during the week ended Sept. 14th there were five deaths registered as being due to this cause.

THE Department of Public Health of Queensland in a bulletin dated August 10th states that no case of plague has occurred in Brisbane since July 20th. As regards the Mauritius, a telegram from the Governor received at the Colonial Office on Sept. 13th states that for the week ending Sept. 12th there were 11 cases of plague and 11 deaths from the disease.

THE second Norman Kerr lecture of the Society for the Study of Inebriety will be delivered in the hall of the Royal Society of Medicine, 20, Hanover-square, London, W., on Tuesday, Oct. 8th, at 8.30 P.M., by Dr. R. W. Branthwaite, H.M. Inspector under the Inebriates Act. The subject is "Inebriety, its Causation and Control."

Dr. D. C. McVail has been reappointed member of the General Medical Council representing the Crown for Scotland.

NOTES UPON HEALTH RESORTS.

THE WATER-SUPPLY OF AIX-LES-BAINS (SAVOIE).

THE remarkable development of Aix-les-Bains as a thermal station during the last quarter of a century and the enhanced requirements for potable water have rendered it absolutely necessary to seek to add to existing supplies. A scheme has been elaborated by the municipality to obtain the additional supply from Lake Bourget and in these circumstances it appeared to us desirable to make an independent examination of the lake water under conditions as similar as possible to those adopted by the authorities in respect of date, depth, and site of collection of samples. In justification of this step we may point out that Aix-les-Bains is one of the most popular watering-places on the continent and is frequented by very large numbers of English and American visitors, some of whom go there in order to benefit by the thermal treatment and others in order to enjoy the amusements offered by the casinos and similar places of entertainment, whilst many are attracted by the natural beauties of this land of mountains and lakes. Inasmuch as the health of this

large and important contingent of foreign visitors is at the mercy of any hygienic indiscretion on the part of the local authorities we have thought it incumbent upon us, on our own initiative and following a precedent already set by us in respect of the water-supplies of Chicago and other municipalities, to form an opinion as to the advisability or otherwise of the scheme. We may add, however, that in the carrying out of our inquiry every assistance has been afforded to us by the mayor, M. Mottet; M. Luya, the town surveyor; Dr. Bleicher, the public analyst; and Dr. Marty, whose kindness in facilitating the collection and dispatch of our samples we gratefully acknowledge.

Incidentally our inquiry bears upon the suitability of lake water in general for domestic consumption and we therefore embody a synopsis of the results obtained by other observers. Although picturesquely situated in a valley surrounded by imposing mountains, snow-clad for several months in the year, and in proximity to Lake Bourget, the Aix district is singularly poor in water suitable for domestic use. No rivers or streams of any size find their way into the Aix Valley and such streams as there are usually run dry during the summer, so that hitherto the water-supply of Aix has been exclusively drawn from springs issuing at the foot of Mount Revard. This water, which is of a very high quality, is stored in three reservoirs (Chevalley, 600 cubic metres; Boncelin, 370 cubic metres; and Chatelard, 1440 cubic metres).[1] The total yield amounts to about 3500 cubic metres daily.

Aix-les-Bains has a resident population of 8300 but during the season close on 40,000 visitors patronise the 63 hotels and 141 chalets and furnished houses provided for their reception. The comparative paucity of potable water seems strange in view of the abundance of the thermal springs which from time immemorial have yielded upwards of 1,000,000 gallons daily at a temperature of between 45·6° and 46° C. in addition to 27,000 gallons of comparatively cold water from another spring which is principally utilised for the purpose of modifying the temperature of the thermal springs for baths and douches. The springs of St. Simon and Massonat furnish a limited supply of slightly mineralised water which has been utilised to some extent for therapeutical purposes. Quite recently, however, a spring yielding an excellent mineral water was unearthed at Corbières, on the flanks of Mount Revard, and this was baptised "Eau des Deux Reines" in commemoration of the fact that the two Queens of Holland were among the first to appreciate the qualities of the newly discovered spring. The geological origin of the "Deux Reines" water insures absolute freedom from contamination, and repeated analyses by independent authorities have shown it to be microbiologically one of the purest of medicinal and table waters. Its total dry residues do not exceed nine grains per gallon, so that it is well adapted for consumption as an *eau de régime* and as a neutral, slightly diuretic table water.

This water, which contains free oxygen in solution, is too valuable to be made use of for domestic purposes, so that it does not come within the scope of the present article. The demand for additional water-supply, long foreseen, became particularly urgent in 1906 in consequence of the prolonged drought, and the municipality was invited to give to the matter its serious attention. For some years past in the height of summer it has been necessary to curtail the water used for watering the streets—a real hardship in view of the enormous vehicular traffic and the yearly increasing number of motor-cars that bring visitors to Aix or pass through on their way to more distant parts of the continent. Even the domestic supply has had to be suspended at times, the mains being cut off at night, thus entailing much discomfort and some risk to the inhabitants,[2] in addition to the danger of contamination by suction into the empty pipes from the surrounding soil.

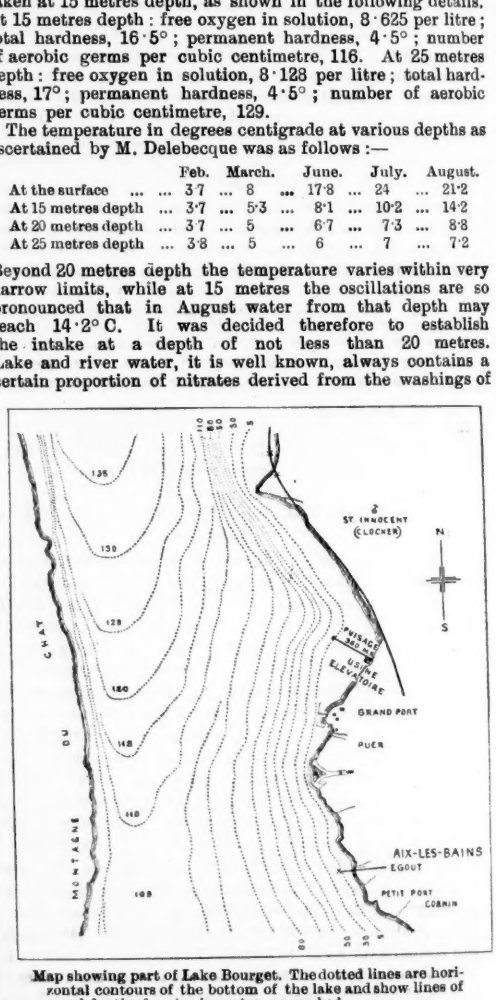
Inasmuch as all available sources of spring water have long since been requisitioned, it was only natural to consider the possibility of utilising the water of Lake Bourget. This, the largest of French lakes, is some 12 miles long by two or three miles wide, and covers an area of over 11,000 acres. It attains in parts a depth of 150 metres, with an average of about 140 metres. Although it communicates with the Rhone through the Canal de Savières at the northern end and receives the Sierroz, the Leysse, and the Seran rivers, there is practically no current of water through the lake during the summer months, although during the autumn and spring it is no doubt efficiently scoured by extra water from the heavy rains and the melting of the snow on the neighbouring mountain slopes which raises the level of the Rhone to such an extent as to cause it to overflow into the lake. It was only natural that an endeavour should be made to utilise this immense natural reservoir for general and domestic purposes. Aix-les-Bains, which is at a distance of about one and a half miles from the lake, is the only town of any size on its shores, although there are a few small hamlets. The sewage of the town is conveyed into the lake through pipes which discharge at a distance of 400 metres from the bank and 1600 metres from the proposed place of captation. Moreover, the lake naturally receives all the sulphur water from the thermal establishment which amounts to upwards of 1,000,000 gallons daily. The matter has received attention at intervals for many years past but last year a special commission was appointed to study the question, more particularly with the object of ascertaining the degree of purity of the lake water at different spots and depths and incidentally to ascertain the best place whence to draw the supply. This commission drew up a report from which we glean the following data.

The best results in respect of purity were given by samples taken at 15 metres depth, as shown in the following details. At 15 metres depth: free oxygen in solution, 8·625 per litre; total hardness, 16·5°; permanent hardness, 4·5°; number of aerobic germs per cubic centimetre, 116. At 25 metres depth: free oxygen in solution, 8·128 per litre; total hardness, 17°; permanent hardness, 4·5°; number of aerobic germs per cubic centimetre, 129.

The temperature in degrees centigrade at various depths as ascertained by M. Delebecque was as follows:—

	Feb.	March.	June.	July.	August.
At the surface	3·7	8	17·8	24	21·2
At 15 metres depth	3·7	5·3	8·1	10·2	14·2
At 20 metres depth	3·7	5	6·7	7·3	8·8
At 25 metres depth	3·8	5	6	7	7·2

Beyond 20 metres depth the temperature varies within very narrow limits, while at 15 metres the oscillations are so pronounced that in August water from that depth may reach 14·2° C. It was decided therefore to establish the intake at a depth of not less than 20 metres. Lake and river water, it is well known, always contains a certain proportion of nitrates derived from the washings of



Map showing part of Lake Bourget. The dotted lines are horizontal contours of the bottom of the lake and show lines of equal depth of water in metres as marked.

the soil in which these salts occur as the result of the process known as nitrification. This process of nitrification has been thoroughly investigated by M. Schloessing in respect of Lake Bourget. His investigation bore on samples

[1] A cubic metre for all practical purposes is 220 gallons.

[2] The reality of the risk may be inferred from the fact that when the town-hall took fire last year no water-supply was available and it had to be allowed to burn itself out.

taken in conformity with his detailed directions (adding one cubic centimetre of chloroform per litre in order to prevent any further nitrification in transport), and the samples taken on June 28th, 1896, gave an average of 1·48 milligrammes of nitrogen in nitrates per litre. The scheme adopted by the municipality provides for the captation of water at a spot (see map) about 360 metres from the lake shore, between the Grand Port and the Cap de l'Ardre—that is to say, at a spot which is not in proximity to any source of contamination such for instance, as the inlet of a stream or river. This part of the shore consists of coarse sand and pebbles and runs down at a gentle slope into the lake to within a few yards of the captation spot which is over a subaqueous precipice. The water at this spot is so clear that it is possible to see the bottom even at a great depth. It follows that there is little hindrance to the penetration of the sun's rays which, as is well known, exert a powerful purifying action on water. It is proposed to take 4400 cubic metres daily from the lake and to pump it through underground pipes across an inhabited area to a reservoir to be constructed on the heights of Corsuet where, as an additional precaution, it is to be filtered through gravel and sand before being distributed. This reservoir will have a capacity of 4400 cubic metres, equal to half a day's supply. The deep aperture of the intake pipe will project over a ledge in the bottom of the lake and will be secured by a metal frame-work at a sufficient distance from the side to avoid stirring up mud, of which in any case there can be but little in view of the sharp declivity.

In an excellent synopsis of his researches into available water-supplies in the district of Chambéry, which includes that of Aix-les-Bains, Professor Hollande, D.Sc., gives much practical information based on direct observation of the value of lake waters in respect of their use for domestic purposes.[3] He points out that lake water is invariably softer than the water brought to it by the various tributaries except, perhaps, in the case of certain very small collections such as the neighbouring lakes of St. Hélène, St. André, des Pères, &c., the waters of which are stagnant. Lake Bourget, on the other hand, is the largest of French lakes and the water taken from the western shore—that is to say, on the side opposite Aix-les-Bains—is a good potable water.

In regard to bacteriological examination this water was found to contain 150 aerobic germs per cubic centimetre, the count having been made on the twentieth day after inoculation. These consisted of the micrococcus aquatilis, bacillus flavus liquefaciens, and the bacterium termo. Search for various pathogenic organisms proved negative.

The samples for chemical analysis were collected in December, 1906, in glass receptacles previously heated to redness and emptied of air by the air-pump. These were let down to the measured depth and allowed to fill *secundum artem*. They were hermetically sealed on being withdrawn and carefully packed for despatch to London. The site of collection was 350 metres from the lake shore between the Grand Port and the promontory of St. Innocent, the temperature at the time being 0°C. The temperature at the various depths was as follows:—At one metre, 5° C.; at five metres, 7°C.; at ten metres, 10°C.; at 15 metres, 10°C.; at 20 metres, 10°C.; and at 25 metres, 9·9°C.

As shown by the accompanying table of analytical results the differences found at various depths are hardly appreciable, but the evidence, on the whole, is slightly in favour of the deeper samples. Curiously enough the best sample of all is that taken from the intermediate depth of ten metres. All the samples of water were quite limpid, bright, bluish in tint, and free from odour. All proved to be decidedly soft, but owing to a small amount of lime salts which comprise the total solids they are without action on lead. There is not the slightest evidence of pollution and not the slightest trace of the presence of organic matter derived from the soil, search for albuminoid ammonia giving in every instance an absolutely negative result, while the free ammonia practically amounted to nothing in the case of the water taken from a depth of five metres. The water taken from a depth of 15 metres shows the same freedom from organic impurity as that of Loch Katrine in Scotland, with the advantage that it contains a somewhat larger proportion of mineral salts which prevent any action on lead pipes. We need hardly point out that a water of this very pure description needs, of course, to be jealously guarded against contamination, since pathogenic germs are peculiarly prone to multiply very rapidly in such waters.

[3] Sources de l'Arrondissement de Chambéry; published by Mérian Chambéry, 1904.

Analysis of Waters taken at Different Depths from Lake Bourget, Aix-les-Bains.—Parts per 100,000.

Depth.	Appearance.	Free ammonia.	Albuminoid ammonia.	Chlorine in chlorides.	Common salt.	Nitrogen in nitrates.	Total solids.
1 metre.	Bright and clear.	*Nil.*	*Nil.*	1·00	1·65	0·040	18·00
5 metres.	,,	0·005	,,	0·70	1·15	0·040	18·00
10 metres.	,,	*Nil.*	,,	0·40	0·66	0·040	15·00
15 metres.	,,	0·005	,,	0·600	0·980	0·032	16·00
20 metres.	,,	*Nil.*	,,	0·700	1·150	0·032	16·00

The sample taken at 25 metres was lost through breakage of the flask in transit. The waters contain lime salts chiefly irremoveable by boiling. The total solids practically consisted of lime salts.

MICRO ORGANISMS IN LAKE WATER.

The subject has been very thoroughly investigated by various observers and it may be well to refer to the results obtained by them in order to afford a ground for comparison. Frankland in his work on "Micro-organisms in Water" points out that the water of Lac Leman at Geneva proved to contain as many as 150,000 organisms per cubic centimetre near the shore, whereas water taken from the middle of the lake only contained 38. These results were confirmed by Karlinski. In the Borke lake, near Koujca, in Herzegovina, water from the surface of the lake, at a distance of 200 metres from the shore, yielded 4000 organisms per cubic centimetre, while close to the shore, in the vicinity of the reeds, they numbered 16,000. The observer also examined the water at various depths and discovered great differences in respect of the abundance of micro-organic life. These examinations were conducted anaerobically as well, so that the maximum number of organisms would thus be detected. While on the surface each cubic centimetre contained 4000, at a depth of only five metres the number fell to 1000; at ten metres rarely more than 600; and at still lower depths, from 12 to 16 metres, only between 200 and 300 per cubic centimetre were found. At the bottom of the lake when the mud was stirred up the proportion rose to 6000. These figures represent the average of some 60 observations.

Cremer gave as the result of 50 examinations of the water of the Lake of Zürich an average of between 42 and 71 organisms per cubic centimetre according to the time of the year, the proportion being higher during the winter. The water of Lucerne gave from 8 to 51 organisms per cubic centimetre, the latter figure being reached in water taken from shallow parts where it was disturbed by steamboat traffic. Loch Katrine water as delivered at Glasgow was found (1892) to contain 74 organisms per cubic centimetre, while the Loch of Lintrathen at the foot of the Grampians, from which Dundee is supplied, gave from 94 to 260, or an average of 170, the samples having been taken from the service pipe inside the city. This water at its exit from the lake only contained 30 per cubic centimetre, while near the shore the average number of organisms was 4000 per cubic centimetre. Frankland remarks that lake water contains a very small number of micro-organisms, as one would expect considering the opportunities afforded for prolonged subsidence. Lake water consequently contains a much smaller proportion of organisms than that of the streams running into them—a fact which is strikingly exemplified in the case of Loch Lintrathen just referred to and the two principal rivers that discharge into it. The streams contained 1700 and 780 organisms per cubic centimetre respectively, whereas the water delivered at Dundee only contained 30. Stephenson and Tidy[4] observe that "water stored in large lakes is as a rule potable, soft, and little liable to serious pollution from animal matters, but with very small lakes and ponds the water is often more largely contaminated, since the proportion of sewage and drainage from manured lands is great in proportion to the volume of the effluent water.'

GENERAL CONCLUSIONS.

The general conclusions to be drawn from the results of

[4] Treatise on Hygiene and Public Health, vol. i. (1892).

many years' attentive study of lake water by competent authorities tend to show that in lakes of considerable size the water is almost free from extensive contamination. Such contamination as results from the discharge of sewage and impure river water is restricted to a very limited area and is soon disposed of by the various oxidising agencies aided by sunlight and sedimentation. The importance of the last factor is in proportion to the absence of current and other causes of motion. At a distance of 200 metres and upwards from the lake shore all trace of soil contamination disappears, and although the surface water still contains a moderate proportion of micro-organic life the water at depths between 15 and 20 metres is remarkably constant in point of purity and temperature. These general results, confirmed by our independent examination of the water of Lake Bourget, authorise the view that this water is eminently suitable for domestic use and that its employment is unlikely to be attended by any injurious effect on the public health. The very moderate amount of micro-organic life which it contains will, no doubt, judging from experience elsewhere, be still further reduced by filtration and we may congratulate the municipality of Aix-les-Bains on having been able to remedy a very obvious shortcoming in an important department of the public service.

THE TOWN COUNCIL OF SOUTHEND-ON-SEA AND ITS MEDICAL OFFICER.

ONLY one of the 24 members of the Southend borough council was absent at the ordinary monthly meeting on Tuesday evening last, when the Health Committee submitted recommendations with regard to the re-appointment of Dr. J. T. C. Nash as medical officer of health. At the August meeting his formal appointment was opposed and as he declined to accept £500 instead of £600 a year it was decided to advertise for an officer at the lower figure. At a subsequent meeting, however, a resolution was carried that the original motion should be considered, and this week the Health Committee brought up recommendations accordingly. The gallery was crowded with burgesses who manifested that they were not in sympathy with the council's treatment of Dr. Nash; in fact, so pronounced and frequent were their comments that the mayor had to request that no feeling, one way or the other, should be expressed by the public.

Alderman J. FRANCIS, chairman of the Health Committee, in moving the recommendations, said: I do not think that any chairman of a committee of this council has ever before been placed in the position in which I find myself to-day. It is very well known that the work of this council is divided into departments, that each department is controlled by a committee, and that with the committee there is a chief official, and under him a staff. It has been customary, whenever a chief official is required for one of the departments, for the committee having charge of the work to deal with the applications and to bring to this council, as a rule, three names, so that the council may ultimately decide who should have the appointment. And having once made the appointment the chief official deals directly with his committee, and the committee through its chairman with the council. If at any time it became necessary to reappoint a chief official the recommendation of the particular committee has always been accepted by the council. I think it will be admitted that this is a good and proper custom. At the last monthly meeting of this council the good old-fashioned custom was entirely ignored and for the first time in the history of this borough the recommendation of the Health Committee to reappoint a chief officer was thrown overboard without one word of explanation or any reason whatever either to the official concerned or to the chairman or to the committee as a whole. I suggest, Mr. Mayor, in the interest of good government that that ought not to be. I suggest most seriously that if any members of this council are of opinion that an official is not a proper man to remain in the service of the corporation the duty of those members is to inform the chairman of the committee concerned so that he may bring the matter before the members of his committee and take their opinion and instructions. Again, speaking in all seriousness, I say that this is the proper course to adopt and although it has been departed from on this occasion I hope it will never be departed from again. What is the result? We are to-day placed in a very serious position. The town has had an advertisement the result of which it may take years to eradicate. In the first place, although we have not yet heard much from the Local Government Board, we are in conflict with that Board; secondly, we have had a very strong protest from the members of the medical profession; and thirdly, I must not overlook the fact that, rightly or wrongly, the opinion is that if one chief official has been unfairly treated there must be unrest among other chief officials—that goes without saying. There is another serious aspect of the matter—the financial aspect. Members of this council, as business men, know that when money is being lent—we will say, if you like, upon security of property—not only is the property looked at but the borrower is also. No man who lends money upon security of property wishes to buy trouble. Therefore, he looks at the man to whom he is asked to lend so that he may form an opinion whether his interest will be promptly paid when it becomes due. What applies to private persons applies equally to a corporation, and if you care to study carefully the list of corporation stock you will see that for yourself. You will find one borough 3¼ per cent. stock quoted at a lower rate than our own 3 per cent. That speaks for itself, because there are reasons. I have already had a warning note—in fact, notes—that if this corporation loses its reputation for fair dealing we shall have greater trouble in the days to come, when we shall have to face an expenditure amounting to a quarter of a million sterling and when we must have the money at any price. It behoves us, therefore, if we have made a mistake, to put our house in order before it is too late. At the last monthly meeting of the council I moved the reappointment of Dr. Nash quite as a formal matter, without having the slightest idea that anyone would oppose it. I do not think it necessary to advance any further reasons why Dr. Nash should be reappointed, but I will give you the terms of his original appointment. Dr. Nash was appointed medical officer of health in 1901 at a salary of £400 per annum, rising by annual increments of £25 to £500. But there was a stipulation that Dr. Nash should be allowed to undertake privately analyses, laboratory work, and other duties of a similar character. In 1903, when the salary automatically became £450, it was decided to increase it to £500, and one of the reasons given at the time was that although up to then Dr. Nash had had the right to charge certain fees, as a matter of fact he had not charged those fees. He stated that in the interests of the borough it was far better that there should be no such charges but that the medical profession should be encouraged to send specimens to the laboratory without anything having to be paid by the town therefor. Mention has been made of the duties which Dr. Nash had to perform in connexion with the schools. It was distinctly understood when he was appointed that he should merely visit the schools and see that the sanitary condition was in proper order. In 1906 the salary was increased to £600, and one reason for the increase was the large increase in the work of the department, and another main reason was the large amount of work which Dr. Nash undertook inconnexion with the Hobart case, work quite outside his duties as medical officer. Had that work been performed by an expert the cost, as the Law and Parliamentary Committee knows, would have reached at least £350. The laboratory work is not very well understood by outsiders and not by certain members of the council. I am not saying that offensively, because if you are working on one committee you cannot be expected to be acquainted with the details of another committee. In 1905 Dr. Nash examined 923 specimens at the laboratory—that in itself is work quite apart from the duties of medical officer of health. The sanatorium work is, perhaps, better understood. I have heard remarks about the expenditure in connexion with the sanatorium. It may be interesting to this council to know that for the year ended March, 1901—before Dr. Nash was appointed—the expenditure was £1865; in the year ended March, 1906—notwithstanding that the population had almost doubled—the expenditure was only £1724. Those figures have never been given to the corporation before and I hope they will prove that there is someone at the helm who has had regard for the expenditure. Here are some more figures: During the four years, 1899 to

1903—before Dr. Nash got his own way with regard to shellfish—there were 20 cases of typhoid fever for every 10,000 of the population; during the four years 1903 to 1907 there have been only 3 cases per 10,000; and from Jan. 1st last to August 31st there were only two cases. What does this mean? It means that not only have we a reputation second to no other seaside town but also that a large expenditure has been saved in connexion with this disease alone. The expenditure in connexion with each typhoid patient is not less than £10, and if you compare the 20 per 10,000 with the 3 you will find that the expenditure must have been lessened by £700. All this I cannot claim is due to Dr. Nash, but it is proof that you have a man of great ability who is doing his level best for the town whether it gives offence to individuals or not. I say, when you have an officer who is doing good service he should be appreciated. If you have an officer who you think it is desirable should be removed or that someone else should take his place—if you like to put it that way—the man is entitled to fair notice; and I say that no public body should be guilty of kicking a man out without giving him fair notice or sufficient and good reason for getting rid of him. At the last monthly meeting I stated that some members voted without considering what the result might be. We all make mistakes. I have made many, and I admit it frankly, but when I have made a mistake no one can say I have not admitted it and apologised. Men may change their minds without lessening their dignity, and I feel sure if certain members will do that to-day they will never regret it and they will have the satisfaction of knowing that although they were parties to doing something which according to the views of the great majority was not right they did the next best thing—retraced their steps and did their best to put things right.

Alderman Francis added that at the last meeting Councillor Garon, although he had nothing against Dr. Nash, objected to a man being appointed for a term without the council having an equal right. He agreed with Councillor Garon that all the chief officers should be appointed on equal terms and would amend the committee's recommendations accordingly. He proposed that the resolution to advertise for a medical officer be rescinded and he said that if that were carried he would move that Dr. Nash be reappointed at £600 a year but that the appointment could be determined by three months' notice on either side.

Councillor COLIN CAMPBELL, chairman of the Education Committee, for which Dr. Nash is also medical officer, seconded the motion.

Councillor LEANEY opposed on the ground that Dr. Nash had not been loyal to the borough. He alleged that Dr. Nash had given evidence detrimental to the town before the House of Lords and had also said that he would not bathe in the sea off Southend for £1000.

Questioned by Alderman FRANCIS Councillor LEANEY admitted that there was no official record of Dr. Nash having made the remark about the £1000. It was stated, Councillor Leaney said, when Dr. Nash was on the pleasure steamer the *Koh-i-Noor*.

Alderman FRANCIS: The impression you gave was that the remark was in the blue-book now in your hand.

Councillor HUBBARD considered that it was very undignified on Councillor Leaney's part to introduce a remark made casually on a pleasure trip, as even if it had been made it might have meant nothing. As for Dr. Nash's evidence before the House of Lords, if it were true no one had cause to complain. He hoped the day would never come when Southend had a medical officer who would be prepared to go into a witness-box and say that which was not true to please any member of the council.

After a heated debate the Health Committee's recommendation was defeated by 12 to 11 votes.

Councillor LEANEY suggested that to effect a compromise a private meeting of the council should be called; but Alderman FRANCIS said that he should be opposed to anything private. Many things had been said, and it would be hinted that many more might be said. Whatever more there was to say it should be said publicly.

CARDIFF INFIRMARY.—At a meeting of the committee of the Cardiff Infirmary held on Sept. 12th it was reported that £17,746 had been received towards the erection of the new wing for the institution, leaving £12,252 still to be obtained.

THE STUDY OF TROPICAL MEDICINE: THE MARY KINGSLEY MEDAL.

WHEN Miss Mary Kingsley, the famous African traveller, died in 1900, the Liverpool School of Tropical Medicine decided to commemorate her work in the tropics by the issue of a "Mary Kingsley Medal," to be presented to those who have distinguished themselves in the work of special research into tropical medicine. The medal was designed by Mr. J. H. McNair and Professor Allen of the University of Liverpool. It is in bronze and contains a bas-relief portrait of Miss Kingsley on the obverse and a suitable design on the reverse with the inscription "Devotion to Science." The first four recipients were presented with the medals by H.R.H. Princess Christian, honorary president of the school. The later presentations have since been made, by the courtesy of His Majesty's Secretary of State for Foreign Affairs, through the British Ambassadors to the various countries concerned.

The following is the official list supplied to us of those who have received the medal, with a note of their work:—

"1. Colonel David Bruce, F.R.S., C.B., R.A.M.C. He discovered the cause of Malta fever, an important disease of warm climates, in 1887. In 1894 he showed that the famous nagana, or tsetse-fly disease of cattle in Africa, is caused by parasites belonging to the group called trypanosomes, which are carried from one animal to another by the agency of glossina or tsetse flies. In 1903 he was the head of the Commission which clearly demonstrated that another kind of trypanosome is the cause of sleeping sickness in man and is carried by another kind of glossina. Since then he has ably directed an extensive inquiry into Malta fever which has proved that that malady is produced by the milk of infected goats.

2. Geheimrath Professor Dr. Robert Koch, Nobel Laureate. He ascertained the cause of cholera in 1883, shortly after his epoch-marking discovery of the cause of tuberculosis. Later he paid many visits to the tropics to study tropical diseases and has added much to our knowledge regarding them, especially his discovery of the frequency of malarial infection in children.

3. Dr. A. Laveran, of the Pasteur Institute, Paris, and D.Sc., University of Liverpool. In 1880 he made the great discovery that malarial fever is caused by parasites in the blood and has added much to our knowledge of this disease and also of other tropical diseases, especially those caused by trypanosomes in man and animals.

4. Sir Patrick Manson, F.R.S., K.C.M.G., of the London School of Tropical Medicine. In 1878 he discovered that one of the parasites of man belonging to the group of filaria is carried by a kind of mosquito and since then he has contributed much to our knowledge of these parasites and the diseases caused by them and also to tropical medicine in general.

5. Dr. Basile Danilewsky, professor of physiology, University of Kharkoff. He discovered numerous parasites of the blood in a large number of animals shortly after Laveran's discovery was made, thus throwing much light on diseases of man due to similar organisms. His observations have been the basis of much of the work done since then on the subject.

6. Dr. Charles Finlay, chief sanitary officer of Cuba. In 1880 he originated the theory that yellow fever is carried by mosquitoes. By careful observations he ascertained the species of mosquito concerned and thus enabled the American Commission under Major Reed to verify the theory finally in 1901. The methods of preventing the disease, used since then with such brilliant success in Havana and Panama, were largely based upon his original suggestion.

7. Dr. Camille Golgi, professor of pathology, University of Pavia. In 1887 he made a complete study of the life-cycle of the parasites of malaria, showed that they belong to different varieties, and demonstrated that the attack of fever is caused by their sporulation, thus elucidating the whole subject of the infection within the human body.

8. Colonel W. C. Gorgas, United States Army. As chief sanitary officer of Havana he gave practical effect in 1902 to the discoveries of Finlay and of the American Commission in connexion with yellow fever and by his energy and capacity succeeded in banishing the disease from the city. Since then, as chief sanitary officer of the Canal Zone of the Isthmus of Panama, he has kept that area practically free

both from yellow fever and from malaria, thus enabling the construction of the Canal to be carried on in security. The practical sanitary labours of Colonel Gorgas have given the world the most brilliant possible example of what such work can effect in the tropics.

9. Waldemar Mordecai W. Haffkine, C.I.E. In 1893 he discovered a method of inoculation against cholera and proceeded to India in order to persuade the people to use it on a large scale. In 1896, on the outbreak of plague in India, he elaborated a similar method of inoculation against that disease also. Since then over 6,000,000 doses of his prophylactic have been prepared and issued by the Government of India and it has been shown to reduce the mortality among the inoculated to one-sixth. Prophylactics against other diseases have been prepared on the same principles.

10. Dr. Arthur Looss, professor of parasitology, School of Medicine, Cairo. He has done much work of great value in connexion with parasitology in general. His discovery of the fact that the young of the parasites called ankylostomes, which produce fatal anæmia in thousands of persons in many tropical countries, enter the body by the skin is one of leading importance.

11. Dr. Theobald Smith, professor of comparative pathology, Harvard University. In 1893 he discovered a new kind of blood parasite in the so-called Texas fever of cattle, and also showed that it is carried from diseased to healthy animals by ticks—a work of great importance in connexion with diseases both of man and animals."

ASYLUM REPORTS.

Dorset County Asylum (*Report for the Year 1906–07*).—The number of patients in the asylum on March 31st, 1907, was 802, being five less than at the corresponding time last year. The county patients numbered 605, out-county patients 40, and private patients 157. During the year 1906 there were 153 patients (78 males and 75 females) admitted into the asylum, and of these 40 (19 males and 21 females) were private cases. Dr. P. W. Macdonald, the medical superintendent, reports that the number of first admissions is six less than last year, which he considers may be taken as an indication that at the present time no actual increase of insanity is manifesting itself among the population from which the bulk of the patients are drawn. He further adds that the type of case admitted during 1906 was not generally of a favourable character, in spite of the fact that only two cases of general paralysis were included among the admissions. The recovery-rate for 1906 was a high one, being 46·2 per cent. calculated on the total number of persons admitted. 67 patients (40 males and 27 females) died during the year, and the causes of death call for no special mention. The rate of maintenance, which has for some years past been 9*s*. 4*d*., was only 9*s*. 0½*d*. during the whole of 1906. The chairman of the visiting committee reports that six new cottages for attendants have been erected under the supervision of the medical superintendent and the county surveyor without the assistance of a contractor, the inmates of the asylum contributing to the skilled and unskilled labour to a large extent. This course was adopted in consequence of the tenders received being considerably higher than the estimated cost, the actual outlay being £1430.

West Sussex County Asylum, Chichester (*Report for the Year 1906–07*).—There were 750 patients on the books of this asylum on Jan. 1st, 1906, of whom 205 were out-county cases and 14 were private patients. During the year 1906 there were 162 patients (71 males and 91 females) admitted. Mr. H. A. Kidd, the medical superintendent, reports that the character of the cases admitted continues to be bad. He has drawn up a table giving an index of the expectation as to the chances of recovery in these cases—viz., recovery probable, 34; recovery possible 18; recovery improbable, 47; and recovery impossible, 63; in other words, no less than 63 per cent. of the cases were of an incurable nature, and in only 21 per cent. was there a reasonable chance of recovery. The mean age of admission was 42, and ten persons were over 70 years of age. Of the 67 patients discharged, 43 were sent out as "recovered" and 21 as "relieved." There were 76 deaths (42 males and 34 females), giving a death-rate of 8·33 on the total number of persons under treatment. The vice-chairman of the visiting committee states in his report that a surgery and isolation block are in course of erection, and further that the building of a nurses' block has also been begun. The committee for a long time has had under consideration the question of providing separate accommodation for private patients and has now decided in the first instance to adapt one ward for that purpose at a cost, including fittings and equipments, not exceeding £120, to be charged to the private patients' account. The minimum charge for such patients is to be £1 1*s*. per week. The committee has also been considering for some years the question of formulating a scheme of superannuation allowances for the officers and staff of the asylum. This has now been completed and presented to the West Sussex county council for its approval. The profits derived from private patients for the year ending March 31st, 1907, were £407 15*s*. 2*d*.; from out-county patients £2356 14*s*. 10*d*.; together making £2764 10*s*., out of which there has been spent on account of the surgery and isolation block the sum of £1068. The weekly rate of maintenance for cases belonging to the West Sussex Union has been reduced to 10*s*. 6*d*. The farming and garden account shows a profit of over £1100.

Looking Back.

FROM

THE LANCET, *SATURDAY*, Sept. 19th, 1829.

LECTURES ON THE EYE.

To the Editor of THE LANCET.

SIR,—Permit me to state the inconvenience, many students are put to, who receive their surgical education at the west end of the town. There are *four or five lecturers on surgery*, and strange to say, only one of them delivers lectures on the pathology of the eye. Now considering the number of diseases this beautiful and delicate organ is liable to be affected with, and the enormous sums received from pupils for attendance on these lectures, surely, some of the gentlemen might make an extension of a few lectures to their "*extended courses*," * at once beneficial to their students, honest as regards themselves, and conferring that information which is calculated to alleviate, in a greater or less degree, the sufferings of mankind.

The insertion of this letter as early as possible will much oblige, and should this hint be the means of producing a reformation in this branch of surgical education, I shall be greatly rejoiced at having called the attention of the Surgical Lecturers to the subject. I am, Sir, yours,

September 15, 1829. H. W. DEWHURST.

* Vide their advertisements.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8072 births and 3793 deaths were registered during the week ending Sept. 14th. The annual rate of mortality, which had been equal to 11·5, 11·8, and 12·3 per 1000 in the three preceding weeks, was again 12·3 per 1000 in the week under notice. During the first eleven weeks of the current quarter the death-rate has averaged 12·0 per 1000, the rate during the same period being 11·9 per 1000 in London. The lowest death-rates in the 76 towns last week were 4·7 in Handsworth (Staffs), 5·8 in Hornsey, 6·0 in West Bromwich, 6·8 in Burton-on-Trent, and 6·9 in King's Norton; the highest rates were 17·4 in Sunderland, 17·5 in Rotherham, 17·7 in Sheffield, 18·0 in St. Helen's, and 20·0 in Tynemouth. The 3793 deaths in the 76 towns were slightly in excess of the number in the previous week, and included 485 which were referred to the principal epidemic diseases, against numbers increasing from 362 to 471 in the six preceding weeks; of these, 278 resulted from diarrhœa, 95 from whooping-cough, 39 from diphtheria, 35 from measles, 26 from scarlet fever, and 12 from "fever" (principally enteric), but not any from small-pox. No death from any of these epidemic diseases was registered last week in Tottenham, Hornsey, York, Aston Manor, King's Norton, Newport (Mon.), or in

five other of the 76 towns; the annual death-rates from these diseases, however, ranged upwards to 3·0 in Great Yarmouth, 3·1 in Bootle, 3·3 in Rotherham and in Gateshead, 3·4 in Liverpool, 3·5 in Sheffield, 3·6 in West Ham, and 3·9 in Cardiff. The fatal cases of diarrhœa have steadily increased in successive weeks from 39 in the second week of the quarter to 278 in the week under notice; the annual death-rates last week from this disease ranged upwards to 2·0 in Hull, 2·2 in Walsall, 2·5 in Sheffield, 2·6 in Liverpool, 2·7 in West Ham, 3·1 in Bootle, and 3·3 in Rotherham. The deaths from whooping-cough, which had been 76 and 80 in the two previous weeks, further rose last week to 95, the highest death-rates from this cause being 1·4 in West Hartlepool and in Merthyr Tydfil, 1·7 in Gateshead, and 2·0 in Great Yarmouth. The 39 fatal cases of diphtheria corresponded with the number in the preceding week, and included 11 in London, four in West Ham, and three each in Manchester and in Salford. The deaths from measles, which had been 84, 73, and 71 in the three preceding weeks, further declined in the week under notice to 35, of which 10 occurred in London and 10 in Cardiff, the annual rate in the latter town from this disease being 2·8 per 1000. The mortality from both scarlet fever and enteric fever showed a considerable reduction from that in other recent weeks and was not excessive in any of the large towns. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had increased from 2658 to 3816 in the 18 preceding weeks, had further risen to 3871 at the end of last week; 574 new cases were admitted during the week, against 440, 557, and 587 in the three preceding weeks. The deaths in London referred to pneumonia and other diseases of the respiratory system, which had been 129 and 116 in the two previous weeks, rose again to 122 in the week under notice, but were five below the corrected average number in the corresponding period of the five years 1902–06. The causes of 34, or 0·9 per cent., of the deaths registered in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in London, Manchester, Bristol, West Ham, Newcastle-on-Tyne, Hull, Salford, Portsmouth, and 51 other of the 76 towns; there were nine uncertified deaths in Liverpool, four in Birmingham, and three each in Sheffield, Bradford, and Gateshead.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been equal to 13·7 and 13 6 per 1000 in the two previous weeks, increased to 15·3 per 1000 in the week ending Sept. 14th, and was 3·0 per 1000 in excess of the mean rate during the same week in the 76 large English towns. The rates in the eight Scotch towns ranged from 10·5 in Perth and 14·6 in Edinburgh, in Aberdeen, and in Greenock, to 15·7 in Glasgow and 16·7 in Dundee. The 532 deaths in these towns showed an increase of 61 over the number in the previous week, and included 69 which were referred to the principal epidemic diseases, against 65, 62, and 58 in the three preceding weeks. These 69 deaths were equal to an annual rate of 2·0 per 1000, which was 0·4 per 1000 above the mean rate last week from the principal epidemic diseases in the 76 large English towns; they included 22 which were referred to "fever," 20 to diarrhœa, 18 to whooping-cough, six to diphtheria, and three to measles, but not any to small-pox or to scarlet fever. The deaths from "fever," which had been seven, 19, and 11 in the three preceding weeks, rose again to 22 in the week under notice, and included 11 in Glasgow, eight in Edinburgh, and two in Dundee; of these 22 deaths 10 in Glasgow, six in Edinburgh, and two in Dundee resulted from cerebro-spinal meningitis. The fatal cases of diarrhœa, which had been 15 and 22 in the two previous weeks, declined again to 20 last week, and included 13 in Glasgow, three in Aberdeen, and two in Dundee. The deaths from whooping-cough, which had been 22, 19, and 22 in the three preceding weeks, decreased in the week under notice to 18, of which eight occurred in Glasgow, six in Edinburgh, and two in Leith. The fatal cases of diphtheria, which had been eight, seven, and one in the three preceding weeks, rose again to six last week, and included five in Glasgow. The deaths in the eight towns referred to diseases of the respiratory organs, including pneumonia, which had been 51 and 57 in the two preceding weeks, further rose to 61 in the week under notice, and slightly exceeded the number in the corresponding period of last year. The causes of 20, or 3·8 per cent., of the deaths in these eight towns last week were not certified or not stated; in the 76 English towns the proportion of uncertified deaths did not exceed 0·9 per cent.

HEALTH OF DUBLIN.

The annual rate of mortality in Dublin, which had been equal to 18·6 and 20·7 per 1000 in the two preceding weeks, declined again to 17·6 per 1000 in the week ending Sept. 14th. During the first 11 weeks of the current quarter the death-rate has averaged 18·7 per 1000, the rate during the same period being 11·9 in London and 12·5 in Edinburgh. The 132 deaths of Dublin residents registered during the week under notice showed a decline of 23 from the number in the preceding week, and included 15 which were referred to the principal epidemic diseases, against 17 and 12 in the two previous weeks; of these, nine resulted from diarrhœa, two from diphtheria, two from "fever," one from measles, and one from whooping-cough, but not any from small-pox or from scarlet fever. These 15 deaths were equal to an annual rate of 2·0 per 1000, the death-rate for the same week from the principal epidemic diseases being 1·4 in London and 2·4 in Edinburgh. The fatal cases of diarrhœa, which had been four, eight, and five in the three preceding weeks, rose again last week to nine. The 132 deaths from all causes during the week included 28 of children under one year of age and 36 of persons aged upwards of 60 years; the deaths of infants were slightly below the number in the previous week, while those of elderly persons showed a very marked decline. One death from violence and three inquest cases were registered during the week; and 62, or 47 per cent., of the deaths occurred in public institutions. The causes of two, or 1·5 per cent., of the deaths registered in Dublin last week were not certified; in London all the causes of death were duly certified, while in Edinburgh the proportion of uncertified deaths was 2·1 per cent. The 125 deaths in Belfast included five which were attributed to cerebro-spinal fever.

VITAL STATISTICS OF LONDON DURING AUGUST, 1907.

IN the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to an annual rate of 8·2 per 1000 of the population, estimated at 4,758,218 persons in the middle of the year; in the three preceding months the rates were 7·1, 7·2, and 8·7 per 1000 respectively. The lowest rates last month were recorded in Paddington, Kensington, Hammersmith, the City of Westminster, Hampstead, and Lewisham; and the highest rates in Shoreditch, Bethnal Green, Stepney, Poplar, Southwark, and Bermondsey. One case of small-pox was notified last month in Poplar and remained under treatment in the Metropolitan Asylums Hospital at the end of the month. The prevalence of scarlet fever showed a slight decline from the excessive amount in the preceding month; this disease was proportionally most prevalent in Shoreditch, Bethnal Green, Stepney, Poplar, Bermondsey, and Woolwich. The Metropolitan Asylums hospitals contained 3709 scarlet fever patients at the end of last month, against 2777, 2975, and 3578 at the end of the three preceding months; the weekly admissions averaged 469, against 368, 390, and 500 in the three preceding months. Diphtheria also showed a slightly diminished prevalence as compared with that recorded in July; among the various metropolitan boroughs the greatest proportional prevalence of this disease occurred in Fulham, Chelsea, Bethnal Green, Stepney, Poplar, Southwark, and Bermondsey. There were 834 diphtheria patients under treatment in the Metropolitan Asylums hospitals at the end of last month, against 933, 806, and 913 at the end of the three preceding months; the weekly admissions averaged 116, against 121, 107, and 140 in the three preceding months. Enteric fever was more prevalent in August than in any other month since April last; this disease was proportionally most prevalent in Fulham, Hackney, the City of London, Battersea, Wandsworth, and Deptford. The number of enteric fever patients under treatment in the Metropolitan Asylums hospitals, which had been 47, 57, and 50 at the end of the three preceding months, had risen again to 65 at the end of last month; the weekly

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING AUGUST, 1907.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1907.	NOTIFIED CASES OF INFECTIOUS DISEASE.									DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.									Deaths from all causes.	Death-rate per 1000 living.	Deaths of infants under one year to 1000 births.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 persons living.		
LONDON	**4,756,218**	**1**	**1992**	**556**	—	**95**	**2**	**25**	**306**	**13**	**2992**	**8·2**	—	**130**	**45**	**50**	**164**	—	**15**	**1**	**148**	**493**	**1·4**	**4102**	**11·2**	**98**
West Districts.																										
Paddington	149,909	—	21	13	—	3	1	—	7	—	45	3·9	—	5	—	2	1	—	—	—	—	8	0·7	119	10·3	90
Kensington	181,842	—	23	15	—	3	—	—	7	—	48	3·4	—	4	—	1	1	—	—	—	5	11	0·8	151	10·8	169
Hammersmith	122,337	—	18	6	—	—	—	—	7	—	31	3·3	—	1	—	1	1	—	—	—	3	6	0·6	86	9·2	90
Fulham	166,749	—	44	26	—	8	—	2	8	—	88	6·9	—	8	2	—	4	—	—	1	10	25	2·0	145	11·3	125
Chelsea	74,857	—	13	15	—	2	—	1	5	1	37	6·4	—	4	—	1	1	—	—	—	2	8	1·4	64	11·1	143
City of Westminster	172,219	—	18	1	—	1	—	1	7	—	28	2·1	—	3	—	—	1	—	—	—	2	6	0·5	114	8·6	72
North Districts.																										
St. Marylebone	127,718	—	43	8	—	3	—	1	7	—	62	6·3	—	—	—	3	5	—	1	—	3	12	1·2	108	11·0	66
Hampstead	91,137	—	22	5	—	—	—	—	5	—	32	4·6	—	—	—	—	—	—	—	—	—	—	—	40	5·7	53
St. Pancras	236,753	—	48	34	—	5	—	—	16	—	103	5·7	—	7	1	3	7	—	2	—	4	24	1·3	256	11·3	92
Islington	347,017	—	92	35	—	4	—	—	15	—	146	5·5	—	12	3	4	3	—	1	—	6	29	1·1	268	10·1	68
Stoke Newington	53,613	—	16	4	—	2	—	—	2	—	24	5·8	—	1	—	—	—	—	—	—	1	2	0·5	33	8·0	68
Hackney	232,993	—	123	22	—	9	—	2	16	—	172	9·6	—	2	3	1	5	—	3	—	3	17	1·0	161	9·0	83
Central Districts.																										
Holborn	55,134	—	16	4	—	2	—	—	2	—	24	5·7	—	2	—	—	—	—	—	—	1	3	0·7	56	13·2	74
Finsbury	96,732	—	47	11	—	1	—	—	9	—	68	9·2	—	7	2	1	1	—	—	—	1	12	1·6	100	13·5	70
City of London	20,310	—	10	—	—	2	—	—	—	—	12	7·7	—	1	—	—	—	—	—	—	—	1	0·6	16	10·3	—
East Districts.																										
Shoreditch	115,662	—	72	16	—	—	—	—	10	2	100	11·3	—	4	2	1	9	—	—	—	10	26	2·9	150	16·9	140
Bethnal Green	130,831	—	114	21	—	—	—	—	11	2	148	14·7	—	2	2	1	3	—	—	—	2	10	1·0	132	13·2	98
Stepney	308,923	—	350	76	—	8	—	3	42	2	481	20·3	—	7	7	13	8	—	—	1	22	58	2·4	314	13·3	111
Poplar	171,066	1	131	28	—	2	—	—	12	—	174	13·3	—	1	4	3	9	—	—	—	8	25	1·9	167	12·7	126
South Districts.																										
Southwark	209,761	—	96	49	—	4	—	5	11	—	165	10·3	—	11	3	2	2	—	1	—	14	33	2·1	226	14·0	120
Bermondsey	123,263	—	109	21	—	3	—	2	12	1	148	15·0	—	3	2	—	—	—	—	—	3	8	0·8	138	14·0	110
Lambeth	318,538	—	90	14	—	2	1	—	18	1	131	5·4	—	8	—	3	9	—	—	—	8	28	1·1	301	12·3	107
Battersea	181,736	—	56	19	—	9	—	—	10	1	95	6·9	—	13	1	1	8	—	—	—	4	29	2·1	162	11·6	83
Wandsworth	281,419	—	96	31	—	11	—	2	19	—	159	7·4	—	8	1	2	11	—	—	—	11	35	1·6	223	10·3	105
Camberwell	277,059	—	96	29	—	1	—	1	21	2	150	7·1	—	9	3	3	5	—	1	—	9	30	1·4	239	11·2	92
Deptford	116,510	—	63	12	—	5	—	—	7	—	87	9·7	—	4	3	2	2	—	1	—	3	15	1·7	106	11·9	97
Greenwich	107,222	—	55	15	—	3	—	—	7	—	80	9·7	—	—	4	—	4	—	—	—	9	17	2·1	81	9·8	114
Lewisham	152,532	—	36	12	—	2	—	—	4	1	55	4·7	—	2	2	1	—	—	—	—	1	6	0·5	103	8·8	69
Woolwich	123,336	—	73	14	—	—	—	—	11	—	98	9·9	—	1	—	1	4	—	—	—	3	9	0·9	93	9·4	80
Port of London	—	—	1	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

admissions averaged 15, against nine, 13, and nine in the three preceding months. Erysipelas was proportionally most prevalent in Finsbury, Shoreditch, Bethnal Green, Stepney, Bermondsey, and Woolwich. The 25 cases of puerperal fever notified during the month included five in Southwark, five in Lambeth, three in Stepney, and two each in Fulham, Hackney, Bermondsey, and Wandsworth. Of the 13 cases of cerebro-spinal meningitis notified during the month, two belonged to Shoreditch, two to Bethnal Green, two to Stepney, two to Camberwell, and one each to Chelsea, Bermondsey, Lambeth, Battersea, and Lewisham.

The mortality statistics in the table relate to the deaths of persons actually belonging to the various boroughs, the deaths occurring in institutions having been distributed among the several boroughs in which the deceased persons had previously resided. During the four weeks ending August 31st the deaths of 4102 persons belonging to London were registered, equal to an annual rate of 11·2 per 1000; in the three preceding weeks the rates had been 14·0, 12·2, and 11·4 per 1000. The death-rates last month ranged from 5·7 in Hampstead, 8·0 in Stoke Newington, 8·6 in the City of Westminster, 8·8 in Lewisham, 9·0 in Hackney, and 9·2 in Hammersmith, to 13·2 in Holborn and in Bethnal Green, 13·3 in Stepney, 13·5 in Finsbury, 14·0 in Southwark and in Bermondsey, and 16 9 in Shoreditch. The 4102 deaths from all causes included 493 which were referred to the principal infectious diseases; of these, 130 resulted from measles, 45 from scarlet fever, 50 from diphtheria, 104 from whooping-cough, 15 from enteric fever, one from ill-defined pyrexia, and 148 from diarrhœa. No death from any of the principal infectious diseases was recorded last month in Hampstead; they caused the lowest death-rates in Hammersmith, the City of Westminster, Stoke Newington, the City of London, and Lewisham; and the highest rates in Fulham, Shoreditch, Stepney, Southwark, Battersea, and Greenwich. The 130 fatal cases of measles were 32 in excess of the corrected average number for the corresponding period of the five preceding years; this disease was proportionally most fatal in Fulham, Chelsea, Finsbury, Southwark, and Battersea. The 45 deaths from scarlet fever exceeded by six the corrected average number; the greatest proportional mortality from this disease was recorded in Finsbury, Stepney, Poplar, Deptford, and Greenwich. The 50 fatal cases of diphtheria was equal to the average for the corresponding period of the five years 1902–6; among the various metropolitan boroughs this disease was proportionally most fatal in Paddington, St. Marylebone, St. Pancras, Stepney, Poplar, and Deptford. The 104 deaths from whooping-cough were 18 above the corrected average number; the highest death-rates from this disease were recorded in St. Marylebone, Shoreditch, Poplar, Battersea, Wandsworth, and Greenwich. The 16 deaths from "fever" were 13 fewer than the average; they included three in Hackney and two each in St. Pancras, Battersea, and Wandsworth. The fatal cases of diarrhœa numbered only 148, against an average of 1330 in the corresponding period of the five preceding years; the greatest proportional mortality from this disease occurred in Fulham, Shoreditch, Stepney, Southwark, and Greenwich. In conclusion, it may be stated that the aggregate mortality in London last month from the principal infectious diseases was less than one third of the corrected average. There were four deaths of London residents attributed to cerebro-spinal fever last month; these deaths belonged respectively to Hammersmith, Chelsea, Shoreditch, and Bermondsey.

Infant mortality, measured by the proportion of deaths under one year of age to registered births, was equal to 98 per 1000. No death at this age was recorded in the City of London either in July or August; among the metropolitan boroughs the lowest rates of infant mortality last month were recorded in the City of Westminster, St. Marylebone, Hampstead, Holborn, Finsbury, and Lewisham; and the highest rates in Kensington, Fulham, Chelsea, Shoreditch, and Poplar.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet-Surgeons: J. Andrews to the *Vivid*, for Pembroke Dockyard; J. Shand to the *Vengeance;* and A. Kidd to the *Defiance*. Surgeons: R. W. G. Stewart to Plymouth Hospital and E. F. Ellis to the *Andromeda*.

ARMY MEDICAL SERVICE.

The undermentioned Colonels are placed on retired pay:—James Magill, C.B. (dated Sept. 6th, 1907); and William A. May, C.B. (dated Sept. 18th, 1907).

The undermentioned Lieutenant-Colonels from the Royal Army Medical Corps to be Colonels: Douglas Wardrop, vice A. W. P. Inman, placed on half-pay (dated August 14th, 1907); George T. Goggin, vice J. Magill, C.B. (dated Sept. 6th, 1907); and John M. Jones, vice W. A. May, C.B. (dated Sept. 18th, 1907).

ROYAL ARMY MEDICAL CORPS.

Captain Harry B. Connell, from the Seconded List, to be Captain (dated August 28th, 1907). Lieutenant-Colonel G. T. Goggin, Administrative Medical Officer at Belfast, has been appointed Principal Medical Officer of the Western Command (Chester), vice Colonel H. Martin.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Captain Samuel J. J. Kirby to be Surgeon-Major (dated August 28th, 1907).

VOLUNTEER CORPS.

Royal Garrison Artillery: 1st North Riding of Yorkshire: Surgeon-Captain S. Farmer resigns his commission (dated August 31st, 1907).

Rifle: 2nd Volunteer Battalion the King's (Shropshire Light Infantry): Surgeon-Major G. Hollies to be Surgeon-Lieutenant-Colonel (dated August 1st, 1907).

THE UNITED SERVICES MEDICAL SOCIETY.

The first meeting of this society will be held at the Royal Army Medical College, Millbank, S.W., on Oct. 10th, at 8 30 P.M., when the President, Inspector-General Sir Herbert Ellis, K.C.B., Director-General of the Medical Department of the Royal Navy, will read a short paper on the objects and uses of the society. There will afterwards be a discussion and arrangements have been made to exhibit objects of interest to members.

Lord Methuen has ordered that lectures on hygiene shall be given to all soldiers of the Eastern Command during the coming winter by officers of the Royal Army Medical Corps.

Fleet-Surgeon O. W. Andrews, R.N., has been selected to represent the Admiralty at the forthcoming International Congress of Hygiene and Demography at Berlin. He represented the British navy at the last Paris Medical Congress.

Correspondence.

"Audi alteram partem."

ROYAL SOCIETY OF MEDICINE.

To the Editors of THE LANCET.

SIRS,—As I have received a number of letters from those who, like your correspondent "Puzzled," have some difficulty in describing their connexion with the above society in the Medical Directory I would suggest that Fellows of the society should describe themselves as Fell.Roy.Soc.Med. If in addition they desire to mention the section or sections to which they belong they should describe themselves as Fell.Roy.Soc.Med. (Sections —— and ——), filling in the name of the section or sections. Members of sections who are not Fellows should describe themselves as Memb. —— Section Roy. Soc. Med., filling in the name of the section to which they belong. A Fellow has the right to attend the meetings of any section. He is a member (i.e., can take part in the business) of any section corresponding to his previous societies but of no other unless duly elected thereto. There are no members of the society, but each section has members who are not Fellows of the society. Such members of sections are those who having belonged to corresponding societies (or having been only elected to the particular sections) do not wish to become Fellows of the society.

I am, Sirs, yours faithfully,

ARTHUR LATHAM,
Honorary Secretary Royal Society of Medicine.

38, Portland place, W., Sept. 17th, 1907.

*** We understand that the publishers of the Medical Directory intend to put the initials F.R.S.M. after the names of Fellows of the society. The abbreviation is a serious error.—ED. L.

THE MEDICAL DIRECTORY.

To the Editors of THE LANCET.

SIRS,—May we be allowed through your columns to appeal to all members of the profession to return to us at once their circulars for the Medical Directory for 1908? The volume will be published about a fortnight earlier than has been customary, although the circulars were sent out a month later. It will thus be seen that the Medical Directory will be more up to date than formerly by six weeks, and in this effort, which will prove an advantage to all concerned, we rely upon the kind help always shown us by the profession.

We are, Sirs, your obedient servants,
THE EDITORS OF THE MEDICAL DIRECTORY.

7, Great Marlborough-street, London, W., Sept. 12th, 1907.

ETHER INHALATION IN PULMONARY TUBERCULOSIS.

To the Editors of THE LANCET.

SIRS,—Your correspondent, in suggesting the use of ether inhalation for the benefit of phthisis, advances one argument as a possible justification for the measure. This argument is the fact that cases of tuberculous peritonitis have been benefited by abdominal section and that perhaps the benefit has really been due to the ether inhaled. Now in face of the fact that clinical experience with regard to the administration of anæsthetics to the subjects of pulmonary tuberculosis is very adverse to the use of that anæsthetic it seems to me that some much stronger support for the practice is needed before we recommend the ether inhalation for the benefit of phthisis. Moreover, Wright has put forward a rational and extremely probable explanation of the benefit accruing in cases of tuberculous peritonitis in which the abdomen has been opened. My own experience, and I believe it tallies with that of most anæsthetists, as it certainly does with that of such physicians as I have met in connexion with cases of operation upon phthisical subjects, is that these cases form one of the classes in which chloroform is *par excellence* the anæsthetic to be chosen in contradistinction from ether. The latter drug is much more likely to increase the activity of an active, or arouse that of a latent, tuberculous focus in the lungs. The use of chloroform inhalation for phthisis in the manner suggested by Dr. R. H. Hodgson has been recommended, but I am not aware of its having been tried or, if so, with what result. Nor can I recall from my own experience cases in which the lung trouble of a patient operated upon for lesion elsewhere has obviously benefited by the chloroform administered. On the contrary, however, I could inform Dr. Hodgson of several instances where pulmonary tuberculosis has been seriously aggravated after operations performed under ether.

I am, Sirs, yours faithfully,
Sept. 17th, 1907. J. BLUMFELD.

THE WORKMEN'S COMPENSATION ACT, 1906.

To the Editors of THE LANCET.

SIRS,—The regulations of the Secretary of State as to the duties of medical referees have been issued to them, and the profession will be pleased to hear that it will not be the fault of the medical referees under those regulations if any breach of medical etiquette should occur. On reference being made to a medical referee by a registrar of a county court the referee is instructed to give notice of the time and place of his intended examination to both the workman or his solicitor, and to the employer or his solicitor, and printed forms are supplied for this purpose, on which it is distinctly stated that any statement made or submitted by either party will be considered.

It is quite clear that the Secretary of State could not go farther than this, unless the Treasury was prepared to pay for the attendance of medical men acting in the interests of either employer or employed, which, of course, would be impossible, owing to the immense expense it would entail. Naturally it will be in the interest of both employer and the workman to place before the medical referee the fullest possible statement of the case as it appears to them, and this cannot properly be done except by a medical man. I feel quite sure that medical referees will be pleased to meet any qualified practitioner asked to attend by either employer or workman, and, in fact, by the wording of the regulation they could not refuse to do so.

The regulations also contain the following paragraph, which I think will meet with the general approval of the profession: "In cases involving special difficulty the medical referee may apply to the Secretary of State for special assistance, which may be granted by the Secretary of State, if he think fit, on such terms as to remuneration or otherwise as he may with the sanction of the Treasury determine." I am, Sirs, yours faithfully,

S. Hampstead, N.W. ALBERT BENTHALL, F.R.C.P. Edin.

ACUTE ARTHRITIS COMPLICATING OPHTHALMIA NEONATORUM.

To the Editors of THE LANCET.

SIRS,—Mr. J. H. F. Nunn's contribution on this subject as it appeared in your issue of Sept. 14th, p. 771, is certainly one of great interest, but though arthritis as a complication of ophthalmia neonatorum is very exceptional it is not quite such a rarity as Mr. Nunn's paper would seem to imply. The condition was first described by Mr. R. Clement Lucas in 1885; subsequently Mr. Lucas published an elaborate paper on the subject, together with an analysis of the records of 23 cases as collected from British and European medical literature (*Medico-Chirurgical Transactions*, vol. lxxxii.). An interesting description of the joint affections is also given in Mr. Sydney Stephenson's "Contagious Ophthalmia," and personally I communicated an example of the disease to the Society for the Study of Disease in Children in 1902 and the record of this appeared in your issue of May 31st of that year, p. 1529. The condition is thus a well-established one but it is of such rarity and interest that all concerned must be glad that Mr. Nunn has put his own personal experience on record. I am, Sirs, yours faithfully,

London, W., Sept. 16th, 1907. C. O. HAWTHORNE.

To the Editors of THE LANCET.

SIRS,—Cases of arthritis in association with ophthalmia due to gonococci, of which Mr. J. H. F. Nunn has reported a good instance in THE LANCET of Sept. 14th, p. 771, although rare, are, of course, well known to ophthalmic surgeons. For the first observation of the kind we have to thank that acute observer, Mr. R. Clement Lucas.[1] Soon afterwards a case was reported by Dr. Johan Widmark[2] in a baby who developed ophthalmia on the sixteenth day of life, having presumably contracted the disorder from another child in the same ward. On the sixteenth day of the conjunctival inflammation the baby developed arthritis of one ankle, which subsided in something less than a fortnight under simple treatment. Widmark's communication, which was originally published in the Swedish language, will be found in that author's *Beiträge zur Ophthalmologie*, p. 95, 1891. In the same year that Lucas and Widmark wrote, another observation of the kind was published by Fendick.[3] Gonococci have been found in the affected joints by several surgeons, as Deutschmann, Hoeck, Haushalter, Heiman, Paulsen, and Altland. The infection, however, seems to be often a mixed one. While this form of gonococcal arthritis is nowadays well known I believe that arthritis in association with penumococcal ophthalmia neonatorum, of which I have seen two cases, has not yet been described.

I am, Sirs, yours faithfully,
Welbeck-street, W., Sept. 14th, 1907. SYDNEY STEPHENSON.

ATHLETICS AND FOOD VALUES.

To the Editors of THE LANCET.

SIRS,—The existence of the British Empire depends largely upon the efficiency of the British soldier and the efficiency of the British soldier is greatly affected by the quality of his food and drink. During the course of a recent walking tour among the volcanic mountains and precipices of Lappland, unsurpassed in Norway for grandeur and desolation, I was driven by necessity to certain conclusions about the best diet for marching 12 or 13 hours a day, which may possibly be of practical interest to some of your readers owing to the unusual conditions under which my observations were made.

[1] Brit. Med. Jour., Feb. 28th, 1885.
[2] Hygiea, August, 1885.
[3] Brit. Med. Jour., Oct. 31st, 1885.

In Lappland one often sees no houses and no people for 12 hours or more at a time in traversing its monstrous cliffs and ravines which are exactly similar to the Herzegovina. Hence I was sometimes driven by necessity to march distances (for example, for 15 hours incessantly over volcanic rocks) which nothing on earth but sheer geographical necessity would have induced me to march. My conclusions are so simple that they can be stated in a few words. They relate to—

1. The incalculable restorative effects of liquid at a high temperature after anything over six hours of continuous marching. So great is the effect of boiling water on the efficiency of a man undergoing a forced march of ten to 14 hours that I feel certain, from my experiments, that it is more important to provide the soldier on a long march with a small apparatus for heating liquid than with food. The extent to which boiling liquid can take the place of food was never fully realised by me until I marched 14 hours on three sandwiches and plenty of hot water. Nothing but the possession of a spirit lamp saved me from serious illness, from fatigue and exposure during some of these marches, and I have no doubt many travellers could corroborate this.

2. The imperious craving for sugar in some form which these long marches produce and the enormous importance of an adequate supply of sugar in the diet of soldiers performing much bodily exertion. I have no hesitation in saying, firstly, that the importance of sugar (owing to the consumption of the sugar in the blood by bodily exercise) is most inadequately recognised in English military diet; and, secondly, that the private soldier is too often driven to satisfy the natural craving for sugar after violent exercise by drinking alcohol. Hence he believes that alcohol is natural and does him good. I further believe that it could be shown by experiment that men who were allowed a glass of milk with four lumps of sugar in it could undergo greater fatigue on that drink than on almost any other.

3. The vast superiority of hot oatmeal porridge at breakfast and supper over almost every other article of food in maintaining efficiency and health during prolonged marches. Abnormal exertions, such as 15 hours of climbing, throw the real value of foods into a far stronger relief than usual. The presence or the lack of that food during an ordeal of this sort at breakfast or supper has so vast an effect on one's condition that I can scarcely imagine any general who is aware of its value overlooking it as an almost complete and most portable food for a forced march of 14 hours. It is far richer in mineral salts than meat.

4. The utility of dried figs. Given a meal of hot porridge for breakfast and supper a soldier could march without discomfort or harm for a whole day or night on a handful of figs and some hot liquid, owing to the fact that they are so full of sugar and mineral salts, which are what the marching man chiefly needs. Anyone who overlooks the value of the fig in catering for the food of an army corps on campaign commits a great blunder. In a rapid campaign the great requisite in food is the *irreducible minimum* for health and strength, which is not the case in time of peace. I believe that a scientific medical investigation of the effects of the ordinary soldiers' diet and of such a diet as the one indicated above in the case of men undergoing long tests of endurance would be exceedingly valuable from a military point of view as well as of great scientific interest, and I also believe that a medical investigation of the dietetic tastes of persons who are known to perform so much bodily exertion as the leading lawn-tennis players could scarcely fail to disclose new and valuable facts on the relation of athletics to food values. The Victoria Food Museum in Bethnal Green-road lately contained a sample of convict diet. The complete absence of fat at breakfast and supper, and the complete absence of treacle or jam except in the "groats," is certainly a blunder if it be desired to obtain the greatest amount of bodily labour from the convict.

I am, Sirs, yours truly,

F. W. PAYN.

Stromsnes, Ulfsfjord, Tromso, Norway, Sept. 2nd, 1907.

THE COOL SUMMER AND DIARRHŒAL DISEASES.

To the Editors of THE LANCET.

SIRS,—The interesting annotation on the cool summer of 1907 in THE LANCET of Sept. 14th, p. 783, leads me to draw your attention to some remarkable figures in the Registrar-General's weekly return of births and deaths in London, &c., for the thirty-sixth week of the years 1906 and 1907. I refer especially to Table 3, from which it appears that in the 13 weeks ended Saturday, Sept. 8th, 1906, diarrhœal diseases were responsible for 2588 deaths in London. On the other hand, in the 13 weeks ended Saturday, Sept. 7th, 1907, this group of diseases caused only 334 deaths. The salient meteorological facts for the two corresponding periods are as follows:—

	1906.		1907.
Mean temperature of the air ...	63·4°	...	58·7°
Mean relative humidity per cent.	70·0	...	74·0
Rainfall in inches	5·43	...	5·46
Registered sunshine in hours ...	732·1	...	521·6

It will be observed that the rainfall was about the same in the two years. The number of rain days was, however, 42 in 1907 compared with only 22 in 1906. Can we doubt that the lower temperature of the air in 1907, amounting to nearly 5 degrees Fahrenheit (4·7°), the showery weather, and the comparative infrequency of blazing sunshine were the chief meteorological causes of the lower mortality from diarrhœal diseases during the past summer?

It is well known that the victims of "summer diarrhœa" are for the most part young children. We are not surprised to find accordingly that in the hot, dry, sunny season of 1906 no less than 2463 out of the total deaths from diarrhœal diseases in London (2588 in number) were of children under five years of age. In the cool, showery, cloudy, and breezy summer of 1907 281 out of 334 deaths referred to diarrhœal diseases were of children under five years. The percentages represented by these numbers are 95·2 and 84·1 respectively. From these figures it will be seen that not only were the total deaths from diarrhœal diseases in 1907 but little more than one-tenth of those which occurred in 1906, but that young children escaped comparatively in the present year from the ravages of what was a very pestilence in 1906.

The same story may be told of all the 76 "Great Towns" of England and Wales, the vital statistics of which are discussed by the Registrar-General in his "Weekly Returns." For example, the diarrhœal deaths in those towns were 2342 in the thirty-sixth week of 1906. They were not one-tenth as numerous in the thirty-sixth week of 1907, being only 229. In his annual report on the health of the borough of Southend-on-Sea, that very able and dauntless medical officer of health, Dr. J. T. C. Nash, assigns good reasons for believing that it is the effect which the prevailing weather has on the propagation and movements of flies which controls the prevalence and fatality of diarrhœal diseases among young children in summer.

I am, Sirs, yours faithfully,

JOHN W. MOORE, M.D. Dub., D.Sc. Oxon., D.P.H.

Dublin, Sept. 16th, 1907.

LANCASHIRE SANITATION.

To the Editors of THE LANCET.

SIRS,—I quite agree with your leading article headed "Lancashire Sanitation," but I would point out that the Public Health Act of 1875 is responsible for the privy-middens. An attempt was made here a few years ago to revise our by-laws and one suggested alteration provided that all new houses about to be erected should have water-closets fitted instead of privies. A draft was sent to the Local Government Board and we were informed we could not insist on the general adoption of water-closets without an Act of Parliament. Section 35 of the Public Health (1875) Act reads, It shall not be lawful newly to erect, &c., without a sufficient water-closet, earth-closet, or privy. Surely you do not contend that all the local authorities mentioned in your article ought to go to Parliament for powers.

I am, Sirs, yours faithfully,

Hindley, Sept. 16th, 1907. J. CHRONNELL.

SUPERNUMERARY DIGITS AND A HISTORY OF HEREDITY.

To the Editors of THE LANCET.

SIRS,—Monstrosities taking the form of supernumerary digits are not of particularly rare occurrence, but I venture to think that the history of heredity in the following case is worthy of record. An infant of six weeks was brought to me for the removal of a supernumerary digit of the right hand. This finger was perfect as to the nail and terminal phalanx but the rest was represented by a fleshy pedicle of

about three-quarters of an inch in length. With the exception that the pedicle was attached to the ulnar side of the hand about the centre of the metacarpal bone the extra digit had exactly the same appearance as that of the case illustrated in THE LANCET of July 20th last, reported by Dr. W. H. W. Attlee.

The history I obtained was as follows. The child's great-great-grandmother had an extra little finger on each hand. She had one child, the great grandmother, who was born with precisely the same malformation. She also had one child, the grandfather, and he too was born with the same number of extra digits His married life proved more prolific, for he had 12 children; of these the first, second, and third were normal, but the malformation was reproduced in the fourth child, a boy, who had a supernumerary little finger on each hand. The fifth and sixth children were again normal, but the seventh, a girl, had two extra little fingers. The eighth, ninth, tenth, and eleventh were normal, but to make up for this long rest heredity had revenge by presenting the twelfth child not only with an extra little finger on each hand but a pedunculated, supernumerary little toe on the right foot. The fourth child above mentioned is married and his eldest little girl was born with the extra digits on each hand. The eleventh child, who herself was normal at birth, is the mother of the infant brought to me.

I am, Sirs, yours faithfully,

North Kensington, Sept. 12th, 1907. S. H. GREENE

TO MEDICAL FREEMASONS.

To the Editors of THE LANCET.

SIRS,—May I once again, through the medium of your widely read columns, appeal to medical men, and medical Freemasons in particular, for votes for the Masonic schools? At the forthcoming elections in October there is only one medical candidate for the *Royal Masonic Institution for Girls: Elizabeth Edith Smart*, daughter of the late Mr. H. P. Smart, M.R.C.S. Eng., of Edgbaston, Birmingham.

As there is no medical candidate for the Royal Masonic Institution for Boys votes for that institution can be exchanged and are equally valuable. Votes for either institution will be gratefully received and acknowledged by me.

I am, Sirs, yours faithfully,

HAROLD S. SINGTON,
Secretary, St. Luke's Medical Lodge of Instruction.

Hospital for Sick Children, Great Ormond-street, W.C., Sept. 15th, 1907.

"MANSLAUGHTER IN AN ASYLUM."

To the Editors of THE LANCET.

SIRS,—I wish to draw your attention to a serious misstatement in your issue of Sept. 14th under the heading of "Medical News." No such incident as that reported has occurred at the "Wonford Asylum, near Exeter."

I am, Sirs, yours faithfully,

P. MAURY DEAS,
Medical Superintendent.

Wonford House, Exeter, Sept. 18th, 1907.

*** We deeply regret the error. The information was published exactly as we received it from an experienced local correspondent who has clearly been misled.—ED. L.

PICROTOXIN AS A PREVENTIVE OF POST-CHLOROFORM SICKNESS.

To the Editors of THE LANCET.

SIRS,—I trust Dr. Peter Paterson will forgive me for pointing out that picrotoxin is not an alkaloid. In this connexion, seeing that the name of this substance ends with "in," and not "ine," I would heartily endorse Dr. Gordon Sharp's letter in your issue of August 10th, p. 410.

Yours respectfully,

London, W., Sept. 16th, 1907. W. H. MARTINDALE.

HOSPITALS AND TAXATION.—The committee of the South Devon and East Cornwall Hospital, Plymouth, has received a summons, which will be heard at the Guildhall, Plymouth, at 11 o'clock on Monday morning next, Sept. 23rd, for the payment of taxes on men-servants in uniform.

THE INTERNATIONAL CONGRESS OF PSYCHIATRY.

(FROM OUR OWN CORRESPONDENT.)

THE International Congress for Psychiatry, Neurology, Psychology, and the Nursing of the Insane (to give the Congress its full name) held its annual meeting at Amsterdam from Sept. 2nd to 7th. Everything was done to start the proceedings with becoming state and solemnity. The opening ceremony was honoured by the presence of Queen Wilhelmina and her husband Prince Henry, with a staff of officers. There were delegates from the Governments of the Argentine Republic, Belgium, Brazil, Bulgaria, Chili, Denmark, France, Germany, Greece, Japan, Luxembourg, Roumania, Russia, Spain, Sweden, and the United States. There were also delegates sent by 42 scientific societies in different parts of the world. Magistrates, officers, and other dignitaries of Amsterdam increased the *éclat* of the meeting which was held in the Municipal Concert Hall, a large and beautiful building with a lofty roof, lighted from crescent windows high on the side of the walls, and having a gallery running along two-thirds of its length. A choir, composed of about 200 ladies, occupied the tiers below the great organ. The Queen sat opposite the rostrum, in a pulpit near the organ.

The Pace of Life.

The opening address, in French, was read by M. VAN RAALTE, Minister of Justice; he was followed by Professor JELGERSMA (Leyden) who discoursed upon the increasing pace of modern life as a predisposing cause of insanity. This was not a time, he said, in which it was permissible to rest. The life of to-day might be stated in two words —*vîpos ailleurs*. There was an overstrain in the intellectual and moral faculties which acted on the nervous system. The "feministic" movement was, he considered, an additional cause of mental derangement. Although he was ready to raise the condition of women he held that the natural difference between the sexes should not be forgotten. Women occupying the positions heretofore assigned to men were often, from their susceptibility of disposition, beset with fears and anxieties. When women entered the medical profession the condition of their patients and the fear that they should fail or had failed to understand their cases haunted them night and day. Professor Jelgersma considered that such increased activity and stress of feelings and actions were the true causes of the increase of insanity. At the end of his discourse Professor Jelgersma put the question whether the calm life of former times would ever return. The answer given was not reassuring. To our complicated life an end will never come. We must reconcile ourselves to perpetual change and perpetual progression.

It served as a kind of consolation at a depressing juncture that a chorus of rich and well-trained voices now sang the hymn of Verhulst, "God is eternal, eternal His might." This was followed by a choral singing of Handel's "Song of Triumph" from *Joshua* and the "Hallelujah Chorus" from the *Messiah*. Though the singing was very fine, there was little applause and the assembly quietly went away.

The Work of the Sections: Kurzschluss.

On Tuesday, Sept. 3rd, the work of the sections began in the University buildings. The subjects were divided into three groups: (1) psychiatry; (2) psychology; and (3) the care and nursing of the insane. The members flitted about from one room to another exchanging greetings and cards. The programmes of the day were not closely followed, it being difficult to estimate the length of the papers or of the remarks thereupon. Criticism was not frequent and the visitor to congresses is forced to conclude that in scientific, at any rate, in medical, societies debating is becoming a lost art. This is mainly owing to the large proportion of professors and teachers of medicine who attend such meetings; instead of speaking to the point they slide away into bits of old lectures. This is what the Germans call *kurzschluss*, taking the easiest way. Considering that there were 750 members enrolled the rooms were by no means crowded and towards the end of the sittings, which were held twice a day, the attendance became scanty.

Copies of many of the papers read or to be read had been already printed and were laid out for the members in a room reserved for the purpose. This was a great assistance for those who desired to know what was going on in the three

separate rooms where the sections held their meetings. The official languages were English, French, and German. The Dutch physicians generally preferred to speak French but most Amsterdamers seem to know German better. The Dutch are good linguists and often speak English fluently.

SECTION I.—PSYCHIATRY.

The Function of the Cerebellum.

In Section I. Dr. VAN RIJNBERK (Rome) defended Luciani's view of the functions of the cerebellum against the criticisms of Levardowsky.

Dr. MUSKENS (Amsterdam), who had studied the structure and function of the cerebellum for ten years, gave a lantern demonstration of the degenerations which he had observed after the removal of the flocculus in the rabbit and cat. No degeneration was found in the corpus restiforme and spinal cord, which was in accord with the views of Ferrier, Turner, and R Russell. There was coarse degeneration of the middle third of the superior crus cerebelli, and a number of internucleal fibres going towards the other side of the cerebellum were also degenerated. Dr. Muskens was not sure that an exact knowledge of the function of the cerebellum had been reached. What was observed after loss or removal of this great organ was an impairment of the regulation of voluntary movements which affected the hemisphere of the cerebrum on the opposite side.

Dr. RAMON Y CAJAL (Madrid) gave a demonstration of the Traumatic Degeneration of the Axis Cylinders of the Brain and Cerebellum.

Professor JELGERSMA gave a lantern demonstration of a large series of Sections of the Brain and Cerebellum.

The Evolution of the Central Nervous System.

Dr. W. H. GASKELL (Cambridge) contributed a lecture on the Evolution of the Vertebrate Central Nervous System, in which he advanced the proposition that as brain power was the leading factor in all upward progress the vertebrate must have arisen from that invertebrate group which possessed the highest central nervous system evolved up to that time—viz., the arthropod group. Tnis, he affirmed, was borne out by geological evidence.

Dr. F. W. MOTT (London) delivered a lucid address, accompanied by lantern slides, on the Development of the Sensory Areas, beginning from the lemur and ascending to the human brain. Very interesting was his statement that he could at once distinguish between microscopic sections of the visual, olfactory, auditory, and general sensory areas. As exhibited by his lantern views the structure of these areas had little dissimilarity and afforded no indication of their varying specific capacities.

Dr. MOTT, in a paper on

Chronic Alcoholic Psychoses,

also gave the result of his extensive studies in the wards and post-mortem rooms of the London hospitals and asylums. He pointed out the great variations in the estimates assigned in the statistical tables of asylums for alcohol as a cause of insanity, ranging from 20 to 8 per cent. In some cases alcohol acted directly upon the brain, as in delirium tremens. In other cases that drug had to act upon a brain already predisposed to insanity, when it might be a coefficient cause; but the incidence of drunkenness did not keep pace with the incidence of insanity. Dr. Mott made much use of the observation that cirrhosis of the liver, admitted to be due to over-indulgence in alcoholic drinks, was common with the sane patients in the London hospitals, while it was very rare in the asylums. But if insanity be so often caused by over-indulgence in drinking, cirrhosis should also be frequent with the insane. Abuse of alcohol had a direct effect in producing gastritis and liver disease; but though it rapidly acted upon the brain, its bad effects were not so permanent. Thus, though drunkenness was sometimes a coefficient cause of insanity, it seldom stood alone as a single efficient cause. It often happened, as also pointed out by Dr. P. SCHRÖDER (who followed Dr. Mott), that the sinking into drunken habits was but a symptom of the depressed and degenerate state which formed the beginning of insanity induced by other causes.—Dr. D. ORR (Prestwich) and Dr. R. G. ROWS (Lancaster) gave a lantern demonstration of lesions of spinal and cranial nerves experimentally produced by toxins.

Hysteria.

There were lively discussions between the French and German physicians on the nature of Hysteria, a subject well fitted for debate and likely to continue so. Dr. JANET (Paris), who is an eloquent speaker, considered hysteria to be a mental malady, which came into the domain of psychiatry, and therefore it should be studied after the methods of this department of medicine, and compared with other known mental diseases. He mentioned the scene where Lady Macbeth seemed to be washing her hands to rub out the spot of Duncan's blood. Such passages of somnambulism, Dr. Janet said, were not infrequent with hysterical women. Out of 660 patients observed Dr. Janet had noted at least 120 cases in which the patients at certain times repeated a scene at which they had already assisted, or put into action a fixed idea. In this state there were often hallucinations of the senses, very intense, and sometimes crimes had been committed. As long as this state lasted the subject believed nothing, accepted nothing which was in opposition to his dominant idea, as was observed in systematised delirium; indeed, he saw nothing and heard nothing out of the system of images connected with the main idea. This system of images and of movements, escaped from the control and even from the knowledge of the other systems, made up his personality. He observed that suggestion should be regarded as a consequence of this disassociation of ideas and the contraction of the scope of consciousness in the mind of the hysterical patient. Hysteria, he said, belonged to the large group of depressive psychoses, together with those suffering from melancholia and depressed maniacal delirium or psychasthenia, to which latter form it approached nearest. Thus the French only allowed a mental basis to hysteria. Some authors laid especial stress upon the mood of the hysterical patient; others upon the mental representations. Some regarded auto-suggestion as the principal factor in hysteria. Charcot remarked that hysteria might simulate anything. Bernheim observed that there were no hysterical symptoms, only hysterical attacks. Hysteria was not a morbid entity. Some German physicians, as Breuer and Freud, found the origin of hysteria in affections of a sexual nature before puberty, colouring the memory and inspiring strange intellectual conceptions.

Professor JELGERSMA made some pregnant remarks upon the Stigmata of Hysteria (such as paralyses, contractures, and anæsthesias). These were, he held, not the result of purely mental representations but of isolated mental images the outcome of a defective hereditary disposition of the central nervous system.

Professor ORSZANSKI (Charkow) in a well-written communication on the Genesis and Nature of Hysteria, argued that this disease could not be reduced to mental phenomena. Neither suggestion nor auto-suggestion would explain all its multiform bodily symptoms. In hysteria not only the higher psychical faculties but the whole nervous system, the entire organism, was affected. Besides the hysterical attacks there were varieties of pathological reflexes, tremors, coughing, vomiting, and locomotor and trophic disorders. The starting point was most frequently to be found in the female genital organs. Slight affections of the uterus in some subjects were followed by hysterical symptoms, while they might not occur with much graver diseases such as tumours. In severe lesions the reflexes might be abolished, while in the lesser ones they were stimulated. Professor Orszanski called especial attention to a characteristic feature in the diagnosis of hysteria. The patient might go through severe and long-continued attacks without exhibiting the least trace of fatigue, whereas after epileptic attacks there was a period of profound exhaustion. He regarded the hysterical fit as a relief from the accumulation of energy naturally followed by a feeling of freedom and lightness which in some cases was noticeable.

Dr. TERRIEN (Nantes) observed that suggestion or auto-suggestion might be the exciting cause of hysteria, but it did not create it; one was born hysterical as one was born with the gouty or syphilitic diathesis. He had met with a neurotic heredity in all his patients. This disposition to hysteria might remain latent and be kept in check by a wise physical and moral hygiene, or it might be aroused by overstrain, intoxication, or moral shocks. The accidents of hysteria might be cured but the proclivity remained. Dr. Terrien said that he could cite 20 or 30 instances of patients whom he had cured of their paralysis or hysterical contractures and who were in the enjoyment of good health, but with whom nevertheless he could produce the same old affections by suggestion. The reason of this was that the hysteria remained latent in their constitutions. On the other hand, he had tried to produce paralysis and

contractures in persons free from hysteria without ever being able to succeed.

Dr. PUTNAM (Buffalo) in an admirable paper, described five cases of Landry's Paralysis, one of Acute Infectious Multiple Neuritis, and another of Myasthenia Gravis. A striking feature in these cases was the suddenness of the onset of the paralysis.

Dr. ERNEST JONES (London) read a paper on the Clinical Significance of Allochiria, which is published in our present issue, *vide* p. 830.

(To be continued.)

THE SEVENTH CONGRESS OF SCANDINAVIAN SURGEONS.

(FROM OUR OWN CORRESPONDENT.)

(Concluded from p. 548.)

Dr. N. RH. BLEGVAD (Copenhagen) presented a report on a series of Ten Cases of Malignant New Growths treated by injections of trypsin in Professor Th. Rovsing's clinic. The result had not been encouraging as there was only one case in which the patient might possibly have derived some benefit from the treatment, the discharge becoming less profuse and foul. In one case at least increasing development of the growth set in after the injections. In another case the patient fell into a comatose state, which gradually disappeared on the discontinuance of the injections and recurred when the injections were renewed.

Dr. I. WIDERÖE (Christiania) read a paper on Hæmolysis as a Help to the Diagnosis of Cancer. Using Kelling's method he had tested the hæmolysis on red blood corpuscles of the hen caused by the serum of 50 patients. 25 of the cases were suffering from malignant new growths. Ten of these cases showed a hæmolysis below 30 per cent. and were reckoned as negative; 15 cases were from 30 to 85 per cent. (positive). Of the ten negative cases six were very cachectic. One patient presented decreasing hæmolysis as the cachexia increased. In another case the hæmolysis became less pronounced after complete removal of the tumour. Of the 25 patients not suffering from malignant growths only three showed a hæmolysis above 30 per cent. An investigation as to the nature of the cancer hæmolysin gave the result that it does not seem to be built up according to the "Seitenkette" (side-chain) theory of Ehrlich but is more probably related to the hæmolysin found by Bord and Kullmann in the blood of cancerous patients. The speaker considered that his observations confirmed the diagnostic value of the method.

On the third day the chief interest centred in the discussion on the Indications, Performance, and Results of Prostatectomy. Dr. G. GUNDERSEN, a Norwegian colleague, now in La Crosse, U.S.A., who opened the discussion, turned out to be a fervent votary of the perineal (Young's) operation, at the same time recognising the usefulness of Freyer's method. In the perineal way he had himself removed the prostate in 40 patients with good results. No patient died immediately after, or within two months from, the operation, though 14 of the cases were in an extremely bad state. All the patients became able to pass urine spontaneously *per viam naturalem* except one with a paralysed bladder. For one of the most feared complications of the operation—viz., lesion of the rectum—Dr. Gundersen had devised a simple and, as three cases of his own proved, very efficacious treatment. He introduces one blade of a scissors into the rectum and the other into the perineal wound and divides the perineum by one snip, thus creating a widely open cloaca which heals up gradually as in the operation for fistula recti. Five or six weeks later the patient is again able to pass his urine in the natural way. Of post-operative complications he had observed incontinence of urine in three of his 40 cases and in one patient an impassable (cancerous?) stricture of the urethra two years after the operation. As to the important question about the influence of the operation on sexual potency, all surgeons using Young's method were of the opinion that the overwhelming majority of the patients kept what they might possess of potency before the operation. Dr. Gundersen thought that the indications for prostatectomy ought to be considered on a broader basis than had hitherto been usual and he felt sure that this treatment was superior to all former methods.

Dr. JERVELL (Christiania) thought that any case of prostatic enlargement causing symptoms should be kept under observation by the surgeon. If the quantity of residual urine increased or the tumour continued to grow an operation should be carried out, preferentially, if the patient could stand it, a prostatectomy. He had mostly used Freyer's method and though his own results were not brilliant he should go on using it.

Professor THORKILD ROVSING (Copenhagen) first wished to protest against a statement which had been made that vasectomy had been abandoned as a treatment of enlarged prostate because it had proved inefficacious. In reality the operation had, like castration, been abandoned because it was "mutilating" and created impotence. He alone had thoroughly tried vasectomy and laid down definite indications for its performance—viz., the uniform soft enlargement of the prostate, while it did not help in the hard hypertrophies. Acting on these indications he had attained very satisfactory results. Amongst 82 vasectomies he had 49 cured, 25 improved, and no deaths. As to the mortality of prostatectomy Gundersen's and Young's results must be admired. But most other operators had rather a high mortality, so that it must generally be considered as a somewhat dangerous operation. If really, however, a complete cure could be promised to all patients who survived the operation, he could understand the enthusiasm of the prostatectomists, even if he could not share it. But such a promise could not, and ought not, to be given. Not seldom retention of the urine remained as before the operation; perineal fistulæ and strictures of the urethra were not infrequent. It was impossible to foresee how the seemingly cured patients would fare later. It was scarcely possible that they should not in many cases develop stricture of the urethra, considering the often inevitable great lesions of that canal. He had himself performed 11 partial prostatectomies, in two of which the patients died, while four were cured and five were not improved. Of his nine total prostatectomies six were suprapubic (with one death) and three were perineal (with two deaths). In one of the suprapubic cases a very dangerous hæmorrhage occurred on the twelfth day after the operation, the patient being only saved by a complete plugging of the bladder. One patient returned a few months after the operation with complete retention produced by stricture of the urethra. The most serious objection to the operation was, however, the fact that in a great number of cases the retention remained unchanged, especially when the enlargement of the gland and the retention were comparatively little pronounced before the operation. It interested him to notice that Gundersen and Young's school had given up their former opinion that partial prostatectomy was to be rejected. Dr. Gundersen now emphasised that only the diseased parts of the prostate should be removed. The reason for this changing of opinion, in which as yet Freyer did not seem to have joined, was that at length the prostatectomists had begun to become aware of the important physiological function of the prostate to which he (Professor Rovsing) had drawn attention already in 1902 and later in Brussels in 1905. It was highly to be regretted that the promoters of prostatectomy had removed hundreds of prostates, not only from old men but from men 40 and 50 years of age, without heeding the importance of the gland for the sexual functions, not knowing that the removal of the prostate produced not only impotence just as surely as a castration did but far oftener than a castration serious psychical derangements followed by suicide. This being so, was there any reason to lay down as a routine treatment of the enlarged prostate this dangerous operation, which, though removing an organ of the highest importance, did not always satisfy the only existing indication—viz., to do away with the retention? Was it not much wiser to have recourse to an operation which did always help the patient and was practically devoid of danger? He had excellent results in suprapubic cystostomy, performed without narcosis, 115 cases with two deaths, two patients with pulmonary affections who insisted on being placed under an anæsthetic notwithstanding advice to the contrary. Once the immediate danger was passed and the retention was done away with, the performance of a prostatectomy might be considered if the patient did not feel content with his state after the cystostomy. Professor Rovsing only performed primary suprapubic prostatectomy in those cases in which a beak-like elongation of the prostate into the bladder prevented the introduction of a catheter

above the symphysis, or in which a prostatic hæmorrhage was a vital indication. At any rate, it was the duty of the surgeon to explain to the patient that a prostatectomy was connected with great risk, would surely cause impotence and possibly psychical derangements, and that he would perhaps be obliged to renew or to continue his "catheter life," notwithstanding the operation.

Later Professor TSCHERNING (Copenhagen), Dr. BORCH GREVINK (Christiania), and Dr. LENDORF (Copenhagen) partook in the discussion.

Professor WESTERMARK (Stockholm) reported shortly on some observations made by him in cases of delivery under spinal anæsthesia, going to show that the corpus uteri had no nervous supply, the contractions depending on properties which appertained to the muscular fibres alone.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

The University.

THE holidays are now almost at an end and the winter session will commence on Tuesday, Oct. 1st. In the medical faculty a conversazione will be held on the evening of that day when the various departments and laboratories will be open for inspection by the guests of the dean and medical faculty, and on the following day the ordinary routine work of the session will begin. The work of the session, however, will be preceded as usual by the September examinations in the second and third parts of the professional course in medicine—that is, in biology, anatomy, physiology, and in materia medica and pathology. This year also at the same time there will be an examination in anthropology and physiology for science students; thus in reality the work of the school will recommence before the winter session actually opens. There is every prospect of a good entry in all the departments of the University and it is hoped that the records established last year will be surpassed, for the influence of the various sections is rapidly extending and students from widely separated parts, both of the old and new world, are applying for admission. The accommodation for the students of engineering, metallurgy, and mining in the new buiidings at Bournbrook is now in full working order, and the departments are equipped not only with all necessary apparatus and specimens but also with sectional libraries, which greatly facilitate study and reference. The additional blocks at Bournbrook intended for chemistry and physics are growing rapidly, but it is scarcely likely that they will be ready for occupation during the next two years, yet such a period in the history of an institution is comparatively short and the authorities will soon have to consider how the first year of the medical course is to be remodelled, so that the medical students shall not be placed at a disadvantage when chemistry and physics leave Edmund-street for their new homes at Bournbrook.

Measles in the Midlands.

During the present year many parts of the Midlands have suffered from measles and in all the places attacked the disease has been severe and associated with complications from which many deaths have resulted. During the first six months of the year Birmingham was one of the places attacked, but apparently, at last, the epidemic in the city is over and the number of cases has fallen to the usual level. Dudley has not escaped the epidemic. During the ten weeks ending August 24th last it was the cause of 25 deaths in that town and though the disease seems to be subsiding it is still prevalent in several wards. In Tunstall the attack commenced in January in the south of the town and extended along its western side towards the north. Apparently it has now ended, in its epidemic form, after a secondary outbreak in the streets of the western side. In the Sedgley and Oldbury districts it is still present in the epidemic form and in the latter district it has caused 15 deaths during the past month. There can be little doubt, as the medical officer of Tunstall has pointed out, that the excessive mortality of the attack has been largely due to the severity of the disease and the frequency of lung complications, associated with the fact that the epidemic was worst in the most densely populated areas where faultily constructed houses and want of intelligent nursing are so commonly met with.

New Isolation Hospital for Smethwick and Oldbury.

At the opening of the new isolation hospital which has been erected by the Smethwick town council and the Oldbury district council Mr. J. W. Wilson, M.P., congratulated the authorities on the good sense which they had shown in adopting a joint scheme whereby money had been saved both by Smethwick and by Oldbury. He stated that much of the ratepayers' money was often wasted by local authorities who would not enter into joint schemes with their neighbours. There is much truth in this statement and certainly Smethwick and Oldbury, though they have only carried out part of the original scheme, have succeeded in erecting excellent accommodation for isolation purposes, conveniently situated for both, at what may be looked upon as a comparatively small cost of £19 524, of which Smethwick will pay £13,436 and Oldbury £6088. In its present condition the hospital includes a pavilion of 16 beds, an observation, a discharging, and an administrative block. In the meantime the hospital will be used for the isolation of scarlet and typhoid fever cases, and ultimately when the scheme is completed 68 beds will be provided.

Past and Present Health of Birmingham.

Alderman Sir William Cook gave some very interesting information the other day concerning the past and present health of the city when speaking in association with a lecture by Dr. R. A. Lyster on the Health of Children. He pointed out that 30 years ago the death-rate was 25 per 1000, whilst in the last three years it has been reduced to 17 per 1000, a result due most probably to the adoption of improved sanitation and to the diminution of overcrowding. We can scarcely congratulate ourselves as yet that it is due to the spread of knowledge conducive to health and application of that knowledge to any great extent amongst the poorer classes, for, as Sir William Cook stated, during the period in which the total death-rate has been reduced one-third the infantile death-rate has only fallen about one-twentieth—that is, from 176 to 167 per 1000. This year, however, we may eventually have a better record in this respect, for, thanks to the cold wet summer the deaths from summer diarrhœa have been comparatively few in number, and during ten of the latter weeks only 56 deaths have occurred from this disease as contrasted with 479 in the corresponding weeks of 1906. In spite of the severe epidemic of measles in the first part of the year the total death-rate of 1907 promises to compare well with that of the immediately preceding years, though it can scarcely be hoped that it will be much reduced beyond the low level at which it now stands until some means are found of effectually combating the infantile death-rate and the loss caused by epidemic diseases. So far as measles is concerned Sir William Cook stated that a scheme is being worked out between the health department and the education department by means of which it is hoped that the spread of measles amongst the scholars in elementary schools will be reduced. Scarlet fever, however, seems to defy the efforts of the health department; it is still far too prevalent in the city, and until some new means of checking it are discovered the five-yearly waves intend apparently to run their usual course, and in that case, as Sir William Cook pointed out, we have not yet reached the summit of the present wave and may expect that the number of cases will continue to rise until next year. Whilst the cold wet summer has had a favourable effect upon summer diarrhœa, the inclement weather of the year seems to have produced an opposite result in the case of consumption, for in a corresponding period the number of deaths has risen from 463 to 491, in spite of the precautions and efforts of our active medical officer and his assistants.

Sept. 17th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

The Health of Liverpool: Corporation Hospitals.

THE port sanitary and hospitals committee of the city council made a complete tour of the corporation hospitals on Sept. 5th, the visits to the six institutions occupying over ten hours. Invitations had been issued to the chairman of each standing committee and others specially interested to join in the inspection. The officials with the party included the medical officer of health (Dr. E. W. Hope) and Dr. A. A.

Mussen (assistant medical officer of health). A repast was served in the administrative block of the new Fazakerley Hospital, Mr. John Utting presiding and giving the loyal toasts and "The Lord Mayor." The Lord Mayor, responding to the toast of his health, remarked that during the ten months in which he had experienced the pleasure of being Lord Mayor of Liverpool he had abstained from joining in the debates of the city council, as he conceived it to be his duty, as a rule, to leave the council to do its own business without his interposition. He had, however, felt strongly inclined to take part in the discussion at the previous meeting of the council when a vote of £50 annually to Dr. William Hanna for services at the New Ferry Hospital was under discussion. He saw that the council in large part failed to grasp the question at issue and to realise the importance of the work intrusted to Dr. Hanna. As a shipowner he could imagine what might be the loss to Liverpool if a bad bill of health led ships from the port of Liverpool to be placed in quarantine at foreign ports. The maintenance of a clean bill of health for this port depended chiefly on the medical inspection of the incoming vessels, and of the 350,000 transmigrants who yearly passed through Liverpool. Hence the port sanitary work of the committee, as well as its city hospital work, was of a most important character and ought not be under-estimated by the city council. Mr. John Utting (the chairman of the committee), in acknowledging the toast of his health, thanked the Lord Mayor for placing the question of Dr. Hanna's salary in its true light, and emphasised both the commercial and sanitary aspects of the work of protecting the health of the port, which was not less important than the safeguarding of the health of the city as a whole. What would happen were Liverpool to become a prey to cholera, as Hamburg had been? If a single case of cholera or plague escaped detection the results would be disastrous. The commercial prosperity of Liverpool would receive a severe, and it might be a permanent, check, while the loss of life might be incalculable. It was with great pleasure that he found that the Lord Mayor had so clear a grasp of the value of Dr. Hanna's services. At times it seemed a pity that the committee had dual duties, some people looking upon it merely as a committee subsidiary to the health committee and others thinking that the committee confined its attentions to the infectious hospitals. He was glad that the city council eventually realised that the committee was in the right on the question of the special remuneration to Dr. Hanna and did not do him the injustice threatened by the council vote last month. Passing to the city hospitals, he reminded the committee that the city council at the beginning of the financial year reduced its careful estimate by £10,000. The council reduced the resources of the committee but it did not reduce the committee's responsibilities, which were actually increased by extended operations, though the average of sickness was less than usual. Curiously enough, but suggestive, the decrease of infectious disease was only in the forms for which hospital accommodation was provided and the time was not far distant when resources not expended in one direction would have to be diverted to the reduction of other infectious diseases. The medical examination of school children carried on for the past eight months to trace the causes of disease showed that out of 6000 children only 7 per cent. were affected with scarlet fever (isolated in hospitals), which was formerly the most prevalent disease, while measles and whooping-cough (not isolated in hospitals) accounted for from 60 to 70 per cent. of the cases. The moral was that many cases of measles and whooping-cough must go to the isolation hospitals. Some inconsiderate people thought that empty or partially empty hospitals denoted extravagance and failure. To have the hospitals empty was a consummation devoutly to be wished and was a sign of success.

Education Committee Appointment.

The secondary education subcommittee of the education committee has appointed Dr. F. E. S. Jeans as lecturer on hygiene for the evening classes for students preparing for the certificate examination at the Oulton Secondary School and pupil teachers' centre in succession to Dr. Robert E. Kelly, surgical registrar to the Royal Infirmary, resigned.

The Order of the Hospital of St. John of Jerusalem.

In recognition of the services rendered by Mr. Arthur J. Evans, M.R.C.S. Eng., L.R.C.P. Lond., of Liverpool, subsequently to the disastrous earthquake in Jamaica on Jan. 14th last, the Order of the Hospital of St. John of Jerusalem in England has been conferred on him by the Grand Priory of that Order.

Sept. 17th.

LEEDS.

(FROM OUR OWN CORRESPONDENT.)

Resignation of Professor C. J. Wright.

BY the resignation of Professor Wright one of the oldest links of union between the original medical school of Leeds and the modern University is broken. It is given to few men to serve any institution for so long as Professor Wright has. Loyally and untiringly he has consistently done his work and has always had before him the high ideal of maintaining and increasing the reputation of the medical school. Professor Wright's resignation was accepted with great regret by the Council of the University and at a recent meeting of the Board of the Faculty of Medicine the following resolution was unanimously passed and transmitted to Professor Wright:—

The board has heard with regret that Mr. Wright has resigned the professorship of midwifery after forty years of faithful work in the interests successively of the Leeds School of Medicine, the medical department of the Yorkshire College, and the School of Medicine of the University of Leeds. For two years Mr. Wright was assistant demonstrator in anatomy, then for fourteen years lecturer on physiology, and for twenty-four years he rendered service in the department of midwifery, first as lecturer and later as professor. Mr. Wright held office as secretary of the council of the Leeds School of Medicine from 1878 to 1880, when he became the president for the year. Since the foundation of the University he has been one of the representatives of the joint faculties on the Court of Governors. He has always been an assiduous and conscientious attendant at board and University meetings. The board desire to record their sense of obligation to Mr. Wright for his long and sincere service, of which they will always retain a lively recollection.

The Open Air Swimming Bath at Roundhay Park.

The provision for Leeds of an open-air swimming pool, which was mentioned in this column on Feb. 16th of this year, has been happily accomplished and the bath is in every way a great success and has been very largely used in spite of the somewhat inclement nature of the summer. The dimensions of the bath are 150 feet in length by 60 in width, and the depth varies from 3 to 5 feet. The bottom and sides are cemented throughout and there is a continuous flow of water through the bath which is provided by the overflow from the Waterloo Lake and can be varied in amount as required. The bath is provided with about 40 dressing boxes, is well surrounded by trees, and is in every way a most satisfactory addition to the bathing facilities of the city. The work was in large measure carried out by men from the corporation Unemployed Registry Office and it is satisfactory to learn that the experiment of employing these men is regarded by the committee as encouraging.

Sept. 16th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

The Royal Infirmary and St. Mungo's College, Glasgow.

A CONFERENCE between the managers of the Royal Infirmary and the governors of St. Mungo's College was held last week to consider the present position of the college. At the meeting reports were submitted from a joint committee representing St. Mungo's College and the Royal Infirmary in reference to the relations between the two bodies in the matter of medical teaching. After discussion it was found that no common basis of agreement could be arrived at and the meeting was adjourned *sine die*. St. Mungo's College was originally brought into existence by the managers of the Royal Infirmary chiefly to carry on the medical school of the infirmary and to be in a position to take advantage of the affiliation clauses of the 1889 Universities (Scotland) Act, as only an incorporated college could become affiliated to a university, and the infirmary managers could not as a board become incorporated as a college. The infirmary managers made over to the college their medical school buildings in the grounds of the Royal Infirmary, which had been erected a few years previously by public subscription. Two of the chairs at the college are partially endowed, one lectureship is fully endowed, and the college possesses some funds in

addition. The necessity which impelled the managers of the infirmary to divest themselves of the school buildings and of any share in the management of the medical school was that in Scotland extra-mural teaching was declining owing to Scotchmen in growing numbers becoming determined, when they entered the medical profession, to enter it through the university and owing to the establishment of new colleges and universities in England where medicine was taught. Thus the managers of the infirmary came to the conclusion that only by their medical school becoming a college of the University of Glasgow under the provisions of the Universities Act could medical students be attracted to the Royal Infirmary. In appealing to the public for funds the governors of the college have always urged that the college existed primarily to advance the interests of the Royal Infirmary by securing clinical students for its wards as clerks and dressers and that such attendance of students was requisite to maintain the great traditions of the Royal Infirmary. The early appeals were generally made by the joint authority of the governors of the college and the infirmary board. In the Diamond Jubilee year a fund was opened for rebuilding a portion of the Royal Infirmary as a memorial of Queen Victoria. Subsequently it was decided that the whole infirmary should be rebuilt, and for this purpose appeals for a large fund were made to the public. The governors of St. Mungo's College resolved that in the circumstances they should hold their hands in the way of asking for money. But about three years ago, owing largely to the effect of Mr. Carnegie's gifts to the universities, the number of extra-mural medical students had so much further declined that the governors found themselves confronted by serious financial difficulties. It became apparent that only by the step of raising a sufficient fund to warrant the governors in approaching the Privy Council with a view to have the college declared a college within the meaning of the Universities Act as the first procedure towards university affiliation could these difficulties be met and the primary object of the college—namely, to afford to the Royal Infirmary a sufficient number of clinical students—be carried out. This was communicated to the managers of the infirmary who were asked to assist the college in making a representation to the public. Prolonged negotiations thereupon took place between the governors and managers of the two institutions which culminated in the joint meeting of last week. The final decision of the managers of the infirmary is that they will not bear any part in raising funds to bring about the affiliation of the college on its existing basis. It emerged in course of the discussion that the managers generally are of opinion that a complete school at the Royal Infirmary is unnecessary and that students from the university at Gilmorehill might be to some extent induced to attend the classes of the final year of the medical curriculum at the Royal Infirmary and thus provide a sufficient number of clinical students for the wards.

Dundee Royal Infirmary.

A meeting of the governors of the Dundee Royal Infirmary was held recently. Mr. J. W. Fleming, who presided, reported that the gynæcologists and surgeons were now finding ample room for carrying out the donor's intentions, not only in respect of cancer but also of other surgical ailments, in the new buildings provided by Mr. J. K. Caird. He also expressed the hope that when the arrangements now in progress for the special investigation of cancer were complete the desire of the donor to throw light on the disease would be fulfilled. The municipal dispensary for consumption had now been at work for several months in the out-patient department and the results were likely to prove of great value. Difficulty had been found in dealing with patients in the wards who were in the advanced stages of consumption and he thought that the provision for those cases which were a real source of danger to the community should not fall on a charitable institution but that the cases should be dealt with by the authorities under the Notification of Infectious Diseases Act. The meeting approved of a scheme for the extension and better equipment of the laundry, for improving the internal arrangements between the main block and the cancer hospital, and for providing additional accommodation in the out-patient department to enable the medical officers to carry on their work with greater convenience. It was announced that the improvements would cost £1570.

Aberdeen District Lunacy Board.

The monthly meeting of the Aberdeen District Lunacy Board was held last week. A motion to reconsider the duties and salaries of the medical superintendent, stewards, matron, grieve, and gardener was defeated by a large majority. A motion to pay the standard rate of wages in connexion with all jobs given out by the district board was also defeated. The cost of Kingseat Asylum to date is £132,121.

Enteric Fever at Peterhead.

The medical officer of health of the burgh of Peterhead reports that the number of cases of enteric fever notified to him during the past week was eight. Nine cases have been removed to the hospital and 13 have been dismissed well, while one death has occurred. 46 cases still remain in hospital.

The Fishers' Dispensary at Aberdeen.

The dispensary which is carried on at Point Law for the treatment of surgical cases among the fisher-people was closed last week. The number of dressings done during the season just ended was 1135 and the number of patients 345. Of this number 121 were fishermen and coopers and 224 were curing women and girls. The dispensary is open only during the herring-fishing season of each year.

Sept. 17th.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

The Tuberculosis Exhibition.

THE secretary of the National Association for the Prevention of Tuberculosis, Dublin, has written to the medical superintendent of the White Abbey Sanatorium for Consumptives, which was founded by the Belfast board of guardians, soliciting his aid in the formation of the proposed Tuberculosis Exhibition in Dublin. The matter came up for consideration at a meeting of the Belfast guardians on Sept. 11th, when it was decided to procure and to forward a number of photographs of the abbey for the exhibition.

The Local Government Board and the Belfast Health Authorities.

The auditor of the Irish Local Government Board has reported to the finance committee of the Belfast corporation that he has disallowed the expenditure of £10 10s. incurred for the printing of posters issued by the Belfast public health committee in reference to physical degeneration. He says that the representative of the Belfast and Ulster Vintners' Association at ended when he was going into the accounts and objected to such an expenditure. I append the editorial comments of one of the leading Irish papers, the *Northern Whig* of Sept. 17th, on the matter:—

> Does the Local Government Board suggest that the city council is not legitimately interested in the health of the city, and that it would be illegal in the case of a visitation of cholera, typhoid, or smallpox for the corporation to spend money in advising the people to look after their drains, water-supply, and backyards? It appears that it was the publicans who objected to the posters, from which we conclude that they dealt with the evils of intemperance. But we have always been told that the licensing interest was itself hostile to intemperance and anxious to check its ravages Yet it appears that the trade and the Local Government Board now join hands in their objection to temperance placards. Perhaps the Board will take the trouble to explain its action in this matter, so that we shall know in the future whether it is really forbidden for the corporation to spend money in promoting public health.

Sept. 17th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Appointment of a Communal Medical Officer Declared Illegal.

A SINGULAR incident in connexion with medical practice has occurred in a commune in the department of Haute Garonne. As there was no medical man in this commune an attempt was made to induce one to settle there by offering him a fixed salary for several years. Several persons who would in the usual course have to contribute to the expense thereupon asked the Council of State to declare this offer illegal and a decision was given in their favour. The Council of State held that the law only permitted municipal councils to provide gratuitous medical aid for paupers. There might be exceptional circumstances in which it would be permissible to provide medical aid for persons who had no

means of obtaining it, but this was not so in the commune under consideration, and the local authority (*conseil municipal*) had exceeded its powers in proposing to assign an annual salary to a medical man who would attend all the inhabitants, rich and poor indiscriminately, without taking fees from individual patients.

Responsibilities of Pharmaceutical Chemists and Parents.

In December, 1906, a girl, 12 years of age, asked a pharmaceutical chemist for something which would destroy warts growing on her hands. He gave her some nitrate of mercury, telling her that she must apply it to the warts with the end of a match every two hours. After the first application her hands and arms were swollen and her hands were severely burned; three months subsequently cicatrices had formed and recovery was still incomplete. The girl's mother brought an action against the pharmaceutical chemist for 10,000 francs, on the ground that her daughter had suffered material injury on account of the scars; moreover, she had been practising on the piano with a view to becoming a teacher of music, but her injuries had prevented her from playing for several months. The court ordered the defendant to pay 50 francs fine and 500 francs damages, as although the application of the mercurial caustic had not affected the girl's health she had nevertheless sustained a definite injury because the cicatrices would probably not disappear entirely; the mother was also to blame for having failed to carry out the directions of the pharmaceutical chemist and for having intrusted her child to a servant, whereas if she had been more careful the accident might have been avoided.

Typhoid Fever in Algeria.

There have recently been many cases of typhoid fever at Blidah, and in consequence the general in command of the 19th Army Corps has been inspecting the barracks of the 1st regiment of the Chasseurs d'Afrique. These have been evacuated and all necessary sanitary measures have been taken. 18 patients were moved into hospital and of these six have died.

A Hospital Ward for the Victims of Motor-cars.

About a year ago a New York barrister was the victim of a motor-car accident just outside Lisieux. He was taken to the hospital of that town and died there some weeks later. In honour of his memory the family of the deceased have founded a new ward which is to be specially used for the victims of motor-car accidents and the foundation stone was recently laid in the presence of representatives of the family, while the Mayor of Lisieux made a speech thanking those who had so generously added to the resources of the hospital.

Sept. 17th.

COPENHAGEN.

(FROM OUR OWN CORRESPONDENT.)

The Danish General Medical Association.

ON August 22nd and 23rd the twenty-ninth meeting of the Danish General Medical Association was held in Copenhagen, and at the same time the association celebrated the fiftieth anniversary of its origin. It was founded on Sept. 1st, 1857, by 80 country practitioners and its members have gone on steadily increasing until at the beginning of the meeting just finished they numbered 1300; in other words, they included nearly all the practitioners of Denmark. One of the great events of the meeting was that the Association of Junior Medical Men, the membership of which comprises all Danish medical men not yet in practice, became incorporated with the older association, so that now practically all the medical men of Denmark to the number of 1600 are united in one strong society. The activity of the Danish General Medical Association has, during its long existence, been very advantageous both to the public at large and to the profession itself. Here I will only mention one of the many difficult questions which the association has brought to a successful issue. At the first meeting in 1857 Dr. Krebs read a paper on the distress prevalent among the manufacturing population, for the alleviation of which he recommended the foundation of sick clubs. As a philanthropic institution the sick clubs were so strenuously supported by the practitioners, that an astonishing development has taken place, with the final result that perhaps one-half of the population of Denmark belongs to such clubs or friendly societies. In 1892 a law was passed concerning the recognition and support by the State of such sick clubs as comply with certain conditions. At the present time 379 clubs, with a membership of 500,000 persons, are recognised by the State, and the sum paid in support of them by the State runs into millions of crowns. Against this overwhelming coalition of clubs the practitioners were often unable to hold their own, but the Danish General Medical Association has finally succeeded in creating a *modus vivendi* to the satisfaction of both parties concerned, so that now the machinery works quite smoothly. It is to be hoped that, backed up as it is now by the whole of the profession, the Danish General Medical Association will be able to assist in working out a bright future for its members.

Treatment of Lupus.

Among the scientific contributions to the meeting the report of the director of the Finsen Light Institute, Dr. Forchhammer, took a prominent place. Having chosen the different local treatments of lupus for his subject, he conceded that the x rays were certainly able to do a considerable amount of good, especially in the hypertrophic form of lupus, but recurrence took place only too easily. In some cases recovery might be brought about by freezing the affected area but necrosis was not seldom seen to set in, especially in the case of the tip or alæ of the nose being treated in this way, so that the patient's last state was worse than his first. The best form of local treatment was the Finsen light treatment. In cases of more than five years' standing it was often impossible to get a successful result, but even in these cases the patients were as a rule considerably improved and the spreading of the destructive process was prevented. In more recent cases the results were extremely satisfactory and such cases might in the future be expected to form the majority of the clinical material of the institute. Out of 500 recent cases whose duration was from one to four years 53 per cent. had recovered, and this result had been verified by observation extending over two years or more. An additional proportion of 22 per cent. had also recovered, but the time of observation was too short to decide whether the good effect would be permanent; 12 per cent. were still under treatment on account of frequent relapses usually arising in the mucous membrane of the nose. In several of these cases the prognosis was, perhaps, bad. In 13 per cent. the treatment had been discontinued and of these patients about one-half had died. Dr. Forchhammer illustrated his remarks by showing about 100 lupus patients who had not previously made their appearance at any congress.

The National Serum Institute of Denmark.

At the same meeting Dr. Thorvald Madsen read a paper on the work of the National Serum Institute of Denmark. This institution provides the profession with all the needed antidiphtheria serum at a nominal price. Researches carried out by Dr. Madsen and Dr. Henderson having shown that two or three days were required before the maximum amount of diphtheria antitoxin passed into the blood from a quantity injected into the subcutaneous tissue, Dr. Madsen recommended intravenous injections in exceptionally serious cases. It would also be well to give preventive injections where a spreading of the infection was likely to occur—as, for instance, in schools. By this means Dr. Maag had been able to stamp out an epidemic in a Danish public school. Professor Dreyer's researches on the standardisation of the Widal test were then alluded to. When carried out in the usual way with living typhoid bacilli the test was very inaccurate, as the same serum might agglutinate one race of bacilli and fail to do so with another. Professor Dreyer had therefore prepared a standardised emulsion of typhoid bacilli killed by means of formol and this emulsion was more sensitive than the living bacilli, at the same time giving absolutely constant results. Killed standardised emulsions of typhoid and paratyphoid bacilli are supplied to the profession by the institute. Dr. Madsen showed a handy and inexpensive thermostat devised by Professor Dreyer. It could be purchased for 5*s.* and enabled any practitioner to carry out for himself the Widal macroscopic test.

Sept. 16th.

ENTERIC FEVER IN THE PONTYPOOL DISTRICT.—The report of Dr. R. W. Johnstone, of the Local Government Board, who investigated the recent outbreak of enteric fever in the Pontypool district, has just been issued. Dr. Johnstone states that there can be little doubt that enteric fever was started at Pontypool by specifically polluted water from the well of the gasworks.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

The First National Congress on Industrial Diseases.

THE "malattie del lavoro" (ailments contracted by the artisan or labourer) are becoming yearly more common in Italy, whose industrial progress, marked as it is, has its "reverse side" equally marked in the pathological sense. On Nov. 19th, 20th, and 21st Palermo will be the seat of the first congress on a national scale convened in Italy for the minimising of those "malattie" and already a strong committee has been formed to carry out its programme, strong in capacity to deal with the "patologia del lavoro" in all its aspects, medical, biological, and social. Under these several heads a number of papers are announced for reading and discussion, which, the special competency of their authors considered, cannot fail to fructify in legislation for the protection and the well-being of the working man. Dr. Giuseppe Züno, professor of legal medicine in the University of Messina, leads off with a report on "Infortunio e Malattie del Lavoro" (Labour: its Casualties and its Diseases); another important "Relazione" will be that by Dr. Eugenio Di Mattei, professor of hygiene in the University of Catania, and Dr. Francesco Spallitta who holds the chair of physiology in the Palermitan school; its subject: "L'Alimentazione delle Classi Laboratrici del Mezzogiorno" (the Feeding of the Working Classes of Southern Italy); and a third "report" will deal with "La Simulazione negli Infortuni" (Malingering or Simulation in Casualties, Medical and Surgical). This last has been intrusted to the capable hands of Dr. Domenico Mirto, professor of legal medicine in the University of Palermo, and Dr. Ciauri of the Army Medical Department. The president of the congress is Dr. Liborio Giuffrè, director of the Institute of Medical Pathology in the Palermitan School, and the general secretary is Dr. Rocco Jemma, who holds the chair of clinical pædiatry in the same seat of learning, to whom all communications by intending participants in the congress should be addressed.

The Opening of the Annus Academicus.

When after its long *siesta* academic life has re-awakened and all the schools are starting on another year of activity, it may interest the English-speaking world to know what part Italy is taking in the equipment of her professional classes. The last statistics available are those for 1906–07, from which we find that the great seats of learning continue to be thronged—the University of Naples above all. At the close of the last academic year the legal faculty enrolled 2263, while in all the rest of the kingdom—comprising the "free" Universities of Camerino, Ferrara, Perugia, and Urbino—the students of the same faculty barely reached 7161. The Universities of Cagliari, Ferrara, Perugia, and Siena numbered least. Again, in the faculty of medicine and surgery the Neapolitan school outsoars all her sisters, enrolling 1427 students. Immediately after Naples come Rome, Palermo, and Turin, then Bologna, Padua, and Genoa. The classes of physics, chemistry, and the natural sciences are the least frequented, just as the aspirants to graduation in engineering are more numerous than the aspirants to graduation in mathematics; the difference, however, in the total is very small, well-nigh incalculable, while as between one university and another it is considerable. In pharmacy the similar aspirants are not many, the University of Turin claiming the largest contingent—130—the candidates for the professional diploma, all told, being 2601. Philosophy and literature claim 152 students at Turin, but Naples and Rome make a better show, the former with 307, the latter with 226. Then come Bologna with 115, Padua with 80, and Pisa with 70. Very few are the notaries and solicitors—388 in all. Academically accredited midwives amount to 1370 Rome numbering only 96, as against the 235 of Naples, 172 of Padua, and 227 of Pavia. It will be seen that the professional classes draw more recruits in Southern Italy and fewer in Northern Italy, the explanation being that in the north the openings for the comparatively lucrative *métiers* of commerce and industry are more inviting as well as more numerous, the north, moreover, attracting fewer candidates for the poorly-paid offices under Government, communal, or municipal. Veterinary surgery and agriculture draw few to their class-rooms, the former counting only 346, the latter 273. For the whole Italian kingdom (mainland and islands) the University students all told amount to 24,038, besides the 1491 who attend the "Istituti di Studi Superiori" like that of Florence; or the "Accademia Scientifico-Letteraria" of Milan; the "Scuola di Applicazione" of Rome; the "Scuola Superiore Navale" of Genoa; or the "Scuola Superiore Politecnica" of Naples. The "University Schools" annexed to the Lycées of Aquila, Bari, and Catanzaro have 273 pupils and the superior institutions for the training of female teachers in Rome and Florence 293. In all, the student population in attendance at seats of learning throughout Italy for the academic year 1906–07 were 26,096, marking a considerable diminution on the numbers of previous "anni academici."

Sept. 14th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Small-pox in Vienna.

THE epidemic of small-pox mentioned in my last letter is not yet entirely checked although the number of fresh cases within the last fortnight has not been more than five or six daily. Altogether 130 cases have been notified and about 500 persons who had been in more or less close contact with the patients were removed for quarantine, but up to the present time only a few of them have shown symptoms of the disease. The recommendation of the sanitary authorities that everyone should be revaccinated has been well responded to and the ample opportunities offered by the public vaccination stations were freely made use of, so that from 25,000 to 30,000 persons were reported as having been vaccinated or revaccinated every day. In less than a month about 1,000,000 persons, or half the population of Vienna, had been vaccinated at these stations and the number of vaccinations performed by medical men in private practice is estimated at a quarter of a million, so that both the vaccinators and the establishments where lymph is produced were kept very busy. As yet the outbreak has been confined to two densely populated districts in the south-west of the city, but in order to prevent extension the opening of the schools has been postponed until Oct. 1st, by which time the disease will probably be under control. Although many of the cases have been of a mild type the mortality is already 10 per cent. of the persons attacked, 76 per cent. have either not been vaccinated at all or have not been revaccinated within the last 20 years, whilst the remainder came from the district where the disease was prevalent and had been infected before the protective influence of revaccination had time to be developed. Of the patients who succumbed none had ever been vaccinated. The age incidence was as follows: 66 per cent. of the patients were under 25 years of age, 25 per cent. were between 25 and 50 years, and the rest were above 50 years, the oldest being 58 years. 30 per cent. of all patients were children below five years of age, which shows well the necessity of early vaccination; the youngest child who was attacked was two months old and the case terminated fatally. The precautions taken were, and are, very extensive and are worth recording. All public institutions and theatres, all factories, workshops, general stores, drapery shops, banking houses, post offices, tramway companies, and railway companies had their employees vaccinated by specially appointed medical men, and the fact was notified in the newspapers so that the public might have no fear of infection from these quarters. Vaccination was, in fact, the only topic of the day. In spite of the mischievous endeavours of the "nature-cure" partisans to shake public confidence in the beneficial effect of vaccination, the attitude of the general population has been quite praiseworthy.

Old-age Pensions for Country Medical Men.

Some months ago a kind of strike movement was initiated among the country practitioners as a protest against the inadequate fees paid for public vaccination. This agitation has borne good fruit, for it has now been resolved by the Diet of Lower Austria that all district and country practitioners shall be entitled to a pension of about £65 a year after 30 years of service and that half of that sum shall be paid to their widows, besides certain fractions of that sum for each child. If a practitioner is

disabled or dies whilst on duty his family is entitled to the full pension without reference to the period for which he has been in the service. In return for these emoluments the country practitioners must undertake free public vaccination of the poor (this was the main point of controversy), free treatment of the poor of the parish, and certain services in the infirmaries. The cost of the pensions will be borne partly by the practitioners themselves, a deduction of 3 per cent. being made from their salaries, but the chief burden will be borne by the State which will have to pay about £5000 yearly under this heading. The new statute will come into force on Jan. 1st, 1908. The benefits conferred by it are insignificant considering the amount of hard work done by the country practitioners, but a beginning has now been made and further improvements in the position of these medical men are only a question of time.

Poisoning by Solutions of Caustic Potash.

Dr. von Pirquet and previously Dr. Teleky have investigated the conditions attending fatalities due to the domestic use of solutions of caustic potash for cleansing purposes and the results of their investigations were discussed at a recent meeting of the Vienna Society of Practitioners. The poison could be obtained easily by children, as no legal restriction was put on its sale. The strength of the solutions in question varied from 7·75 per cent. to over 30 per cent. and the accidents were mostly due to the reprehensible custom of allowing children to drink from bottles. Sometimes the poison was contained in ordinary beer or wine bottles, so that a mistake was easily made, especially by children, who form the majority (80 per cent.) of the victims. In seven years these investigators collected particulars of 362 cases from the Vienna hospitals, with a direct mortality of 18·5 per cent.; 10 per cent. of the patients had to be operated upon. Of those who survived the injury or the operation, 93 per cent. suffered from stricture of the œsophagus, with fatal complications in 5 per cent. at a later stage. Treatment by thiosinamin proved beneficial in Dr. Teleky's hands, apart from surgical measures. In the discussion there was a general agreement to the effect that the unrestricted sale of the poison should be prevented and that registered druggists only should be permitted to sell caustic soda or caustic potash, in definite low concentrations, and only in vessels of a special pattern. The addition of a substance having a disagreeable odour as an indication of danger was also thought to be worth consideration.

Partial Removal of a Tumour of the Hypophysis Cerebri.

In THE LANCET of June 1st, p. 1528 mention was made of a new operation by Professor Schloffer of Innsbruck, on a case of tumour of the hypophysis cerebri. The patient, who had been suffering from constant headache and drowsiness, improved to some extent after the operation, his pains disappeared, and his general condition was good. Death occurred ten weeks after the operation and eight days before the closing scene headache and giddiness reappeared for a short time. A similar attack occurred the next day, then a third five days later, and the fourth proved fatal. The terminal attack was accompanied by vomiting, bradycardia, and Cheyne-Stokes breathing. Respiration ceased first and the heart's action subsequently. The post-mortem examination showed that the size of the growth had been underestimated, as more than four times the quantity removed at the operation had been left in the brain. The tumour penetrated into the left lateral ventricle; it had caused chronic hydrocephalus, it had destroyed parts of the optic nerves and the corpus callosum, and the concomitant hypoplasia of the genital organs was perhaps also due to its presence. The wound on the base of the skull had healed perfectly with a solid scar of connective tissue, which proved that in special cases the transnasal method of access to the hypophysis is permissible. The operation, which resulted in improvement of the distressing condition of the patient, had undoubtedly been of benefit by the diminution of compression which followed removal of a fifth of the tumour and the escape of fluid. Death occurred when the growth of the tumour finally closed the foramen of Monro, thus causing an acute obstruction in the lateral ventricle. The principal lesson taught by this case is the possibility of operating through the nose on the base of the brain without producing meningitis.

Sept. 14th.

Medical News.

FOREIGN UNIVERSITY INTELLIGENCE.—*Basle:* Dr. Loch has been recognised as *privat docent* of Experimental Pathology.—*Berlin:* Dr. Peter Bergell, Assistant in the First Medical Clinic, Dr. Victor Schmieden, Assistant in the Ziegelstrasse Surgical Clinic, and Dr. Heinrich Poll, Assistant in the Institute of Anatomy and Biology, have been granted the rank of Titular Professor.—*Bologna:* Dr. Arturo Lanzerini has been recognised as *privat docent* of Internal Pathology and Dr. Alfredo Filè Bonarrola as *privat-docent* of Children's Diseases.—*Bonn:* The title of Professor has been granted to Dr. Max zur Nedden, *privat-docent* of Ophthalmology, and to Dr. Rudolf Eschweiler, *privat-docent* of Otology.—*Budapest:* Dr. Ladislaus Rohrer has been recognised as *privat docent* of Medical and Physical Chemistry.—*Cincinnati (Miami Medical College):* Dr. William D. Porter has been appointed Professor of Midwifery.—*Götting n:* The title of Professor has been granted to Dr. Alfred Schittenhelm, *privat-docent* of Medicine, and to Dr. Rudolf Staehelin, of the University Clinic.—*Greifswald:* Dr. Guido Fischer has been recognised as *privat-docent* of Odontology.—*Kharkoff:* Dr. S. Pêtin has been recognised as *privat-docent* of Histology.—*Königsberg:* Dr. Isfried Hofbaur has been recognised as *privat docent* of Midwifery and Gynæcology; Dr. Arthur Brückner of Würzburg has been recognised as *privat-docent* of Ophthalmology; Dr. Kurt Goldstein as *privat-docent* of Mental Diseases; and Dr. Ernst Laqueur of Halle as *privat-docent* of Physiology.—*Kiel:* Dr. Leopold Heine of Greifswald has been appointed Professor of Ophthalmology.—*Montreal (McGill University):* Dr. J. L. Todd has been appointed Professor of Parasitology and Dr. Andrew McPhail Professor of the History of Medicine.—*Naples:* Dr. Vittorio Schaffidi has been recognised as *privat-docent* of General Pathology; Dr Giovanni Di Cristini as *privat-docent* of Internal Pathology; Dr. Eugenio La Pegna as *privat-docent* of Neurology and Psychiatry; Dr. Ernesto Sgrosso as *privat-docent* of Ophthalmology; and Dr. Giuseppe Cristali as *privat-docent* of Midwifery and Gynæcology.—*New York (College of Physicians and Surgeons):* Dr. William K. Draper, Dr. George B. Lockwood, and Dr. Van Horne Norrie have been appointed Assistant Professors of Medicine; Dr. Royal Whitman, Assistant Professor of Orthopædics; and Dr. James D. Voorhees, Assistant Professor of Midwifery.—*Padua:* Dr. Luigi Messedaglia has been recognised as *privat docent* of Internal Pathology.—*Pavia:* Dr. Ettore Fornaroli has been recognised as *privat docent* of Medical Pathology and Dr. Gino Acconci and Dr. Carlo Pinto as *privat-docenten* of Midwifery and Gynæcology.—*Pisa:* Dr. Alberto Marrassini has been recognised as *privat-docent* of General Pathology; Dr. O. Torri as *privat-docent* of Internal Pathology; and Dr. Guido Ferrarini as *privat-docent* of External Pathology.—*Prague (Bohemian University):* Dr. Johann Jansky has been recognised as *privat-docent* of Mental Diseases.—*Rome:* Dr. Giulio Galli has been recognised as *privat-docent* of Internal Pathology and Dr. Enrico Fossatoro as *privat-docent* of Traumatic Diseases.—*Rostock:* Dr. Reinmöller has been appointed Lecturer in Odontology.—*Tübingen:* Dr. Sellheim has been appointed Professor of Gynæcology in succession to Dr. Döderlein.—*Turin:* Dr. Carlo Foà has been recognised as *privat-docent* of Experimental Physiology; Dr. Girolamo Piccardi as *privat-docent* of Dermatology; Dr. Luigi Bobbio as *privat docent* of External Pathology; Dr. Stefano Santucci as *privat-docent* of Ophthalmology; Dr. Santi Pusateri as *privat-docent* of Otology and Laryngology; Dr. Camillo Palazzo as *privat-docent* of Odontology; Dr. Stefano Balp as *privat docent* of Demography and Medical Statistics; and Dr. Eloardo Audenino and Dr. Francesco Burzio as *privat-docenten* of Psychiatry.—*Utrecht*: Dr. F. H. Quix has been appointed Lecturer in Otology and Laryngology.—*Vienna:* Dr. Josef Meller has been recognised as *privat-docent* of Ophthalmology.

THE PLAGUE IN INDIA.—The prize for the best essay on the best methods of prophylaxis against plague, which was offered last April by our contemporary the *Indian Medical Gazette*, has been awarded to first class hospital assistant P. S. Ramachandrier, of the Mysore Medical Service, who until lately was a member of the Plague Research Commission, and is well known as the editor, in conjunction with Mr. Anant Santram Malve, of the

All-India Hospital Assistants' Journal. The competition, which was restricted to assistant surgeons and hospital assistants, produced no fewer than 14 essays, of which the majority were highly praiseworthy. The author of the second best essay is first grade civil hospital assistant Annanda Charan Sarcar, who is in charge of the dispensary at Jugdispur in the Shahabad district. According to our contemporary this gentleman's essay is particularly valuable on account of the personal experience of the writer who gives a very satisfactory account of the methods which have been found successful in his district for destroying rats. Other essays worthy of mention, continues the editor, are those by (1) assistant surgeon Guru Prasad Mitra, M.B., of Dibrugar, Assam, which shows a very careful study of the most recent literature of plague; (2) assistant surgeon S K. Vaidya of Mirpur Khas, Sind; (3) assistant surgeon Abdul Ghani of Bareilly; (4) hospital assistant Veeraswamy Raidu of Mandalay; (5) assistant surgeon S. C. Basu of Rawal Pindi; and (6) assistant surgeon U. Ray of Harda, United Provinces. The place of honour in the *Indian Medical Gazette* for August is accorded to Mr. Ramachandrier's prize essay, which is printed *in extenso*. In addition to adequate scientific equipment the writer possesses a thorough knowledge of the habits and customs of his native country and is, moreover, able to convey his meaning in clear and convincing if somewhat unconventional language. Mr. Ramachandrier's essay is a thoroughly practical document, well worthy of the attention of the authorities in India who are chiefly concerned in the repression of plague. His knowledge of the inner life of the people of India is invaluable, combined as it is with the will and the ability to place it at the disposal of the executive.

PUBLIC VACCINATORS' FEES.—Some time ago the Wandsworth board of guardians decided to adopt the minimum scale of fees for public vaccination. At the meeting of the board a month ago the practitioners affected sent a deputation and pointed out the inadequacy of the fee of 2*s*. 6*d*. for primary vaccination at a child's home. The guardians as a whole agreed and were willing to increase the amount to 3*s* 6*d*., but a point of order was raised by an anti-vaccination member with the result that the subject had to be adjourned. At the meeting of the board held on Sept. 12th a letter was submitted from Mr. E. R. Badcock on behalf of the public vaccinators stating that they were prepared to accept the new fees with the exception of that for primary vaccination at the child's home. They suggested that 5*s*. should be paid as formerly in respect of every such vaccination, with a reduced fee of 2*s*. 6*d*. for the second and subsequent cases. A guardian raised a point of order—namely, that before the subject could be considered there must be a motion to rescind the resolution which adopted the reduced scale. This was conceded and the vice-chairman of the board gave notice of his intention at the next meeting to move the rescinding of the resolution referred to.—At a meeting of the Bodmin (Cornwall) board of guardians held last week a letter was read from the eight public vaccinators of the union stating that they were unable to accept the reduced scale of vaccination fees suggested by the guardians and adding that in the opinion of the writers the Order of the Local Government Board was evidently not intended to apply to such a scattered district as the Bodmin union. After some discussion the guardians referred the matter to the finance committee.

POST-GRADUATE WORK IN HAMBURG.—"D. J. G." writes to us as follows: "During a recent visit to the hospitals of Hamburg I have been much impressed not only by their excellent management but by the facilities they afford for post-graduate work. The general hospital at Eppendorf is a modern edifice built on the pavilion system and having accommodation for over 2000 patients. Its surgical department is under the care of Professor Kümmell, whose orthopædic work is well known, whilst Dr. Unna has charge of those wards reserved for cases of skin disease. There are many other pavilions, all of them airy, clean, and orderly; indeed, Hamburg may well be proud of this splendid hospital. Nearer the centre of the city, amid beautiful grounds, stands the Hospital of St. George, containing about 1000 beds. There is here a large and well-equipped pathological laboratory in which each of the assistant physicians and surgeons has his bench for research work. Post-graduate courses, each lasting for several weeks, are held yearly at those hospitals. The Eppendorf course is held in August and that at the St. George during March. One may then attend medical and surgical cliniques and receive practical instruction in ophthalmology, gynæcology, laryngoscopy, medical electricity, &c. Those who take advantage of the classes are for the most part German practitioners, and remarkably few English names are to be seen in the visitors' books of the hospitals. A course of a practical nature on tropical diseases is given twice a year at the Hamburg Seamen's Hospital and here also ship surgeons may be taught their special duties. To the doctor who has little time at his disposal but who wishes to see something of German methods and work one can have no hesitation in recommending Hamburg as a place of study."

SEAMEN'S HOSPITAL SOCIETY.—The inaugural address of the winter session of the London School of Clinical Medicine will be delivered in one of the lecture rooms of the school by Sir Richard Douglas Powell, President of the Royal College of Physicians of London, on Tuesday, Oct. 8th. The chair will be taken at 3.30 P.M. by Mr. Perceval A. Nairne, chairman of the board of governors. The school and hospital will be open for inspection and tea will be served after the address.

GREAT NORTHERN CENTRAL HOSPITAL: A CORRECTION.—The secretary of this hospital writes to inform us that the names of the staff of the hospital, as sent to us from the institution and published in the Students' Number of THE LANCET, are not given quite accurately. The staff is as follows:—Consulting Physicians: Sir S. Wilks, Bart., and Dr. R. Burnet. Physicians: Dr. E. C. Beale, Dr. C. E. Beevor, Dr. A. Morison, Dr. T. J. Horder, Dr. H. E. Symes-Thompson, and Dr. H. W. Willcox. Obstetric Physicians: Dr. G. F. Blacker and Dr. Cuthbert Lockyer. Physician for Skin: Dr. A. Whitfield. Surgeons: Mr. P. T. B. Beale, Mr. G. B. M. White, Mr. E. C. Stabb, Mr. V. W. Low, and Mr. Arthur Edmunds. Ophthalmic Surgeons: Mr. A. S. Morton and Mr. George Coats. Throat and Ear Surgeons: Mr. E. B Waggett and Mr. J. Gay French. Dental Surgeon: Mr. C. Peyton Baly.

PRESENTATIONS TO MEDICAL PRACTITIONERS.—At Wadebridge (Cornwall) on August 30th Mr. William Annesley Eden, L.R.C.P. Lond., M.R.C.S. Eng., L.S.A., was presented with a silver rose bowl as a mark of respect and esteem on the occasion of his leaving the town.—At the meeting of the Long Ashton (Somerset) board of guardians held on Sept. 3rd, under the presidency of Sir Henry Miles, Mr. Frederick Weatherly, M.R.C.S. Eng., L.S.A., J.P., was presented with a silver tray, tea and coffee services, and kettle. On the back of the tray was the following inscription: "This tray, with tea and coffee services and kettle, was presented to Frederick Weatherly, Esq., J.P., in his eighty-eighth year, by past and present guardians of the Long Ashton Union and other friends, as a mark of their esteem and appreciation of his public services as vice-chairman and chairman of the board for a period extending over a quarter of a century."—Mr. Eleazar Davies, L.R.C.P. & S. Edin., and Mrs. Davies have been presented by the inhabitants of Pantywaun, near Dowlais, with a silver tray (suitably inscribed), silver cruet, and a work-basket.

THE FUNERAL OF MR. TIMOTHY HOLMES.—Mr. Timothy Holmes, senior consulting surgeon to St George's Hospital, who died on Sunday, Sept. 8th, was buried on the following Thursday at Hendon. Among those who attended the funeral, in addition to members of the families of Mrs. Holmes and of the deceased, were Sir William S. Church, representing the Royal Society of Medicine, Mr. Holmes having been formerly President of the Royal Medical and Chirurgical Society; Mr. J Warrington Haward, representing the Royal College of Surgeons of England, of which Mr. Holmes was formerly Vice-President; Sir Alexander Bruce, Sir Melville Macnaghten, and Mr. Clinton T. Dent, representing Scotland Yard, Mr. Holmes having for 20 years been chief surgeon to the Metropolitan Police; Lieutenant-Colonel Montefiore, representing the Charity Organisation Society; the Rev. A. G. Locke, representing the governors of St. George's Hospital; Mr. Herbert S Pendlebury, honorary treasurer of that hospital; Mr. M. P. Jasper, representing the London Sanitary Protection Association, of which body Mr. Holmes was chairman; Dr. G. F. Blandford, Dr. Frederic W. Hewitt, Mr. W. C. Bull, and

Dr. Arthur C. Latham, members of the consulting and active medical staff of St. George's Hospital; Dr. S. S. Sprigge, representing THE LANCET; Dr. C. Spencer Cobbold, Mr. Charles E. Underhill, Dr. A. J. Jex-Blake, Mr. G. E. Friend, Mr. Arthur Johnson, and Dr. R. S. Trevor. The first part of the service was held in the old parish church and both there and at the graveside the officiating clergyman was the Rev. F. W. Pakenham Gilbert.

LITERARY INTELLIGENCE.—Mr. H. J. Glaisher of Wigmore-steeet is publishing for the Ambrose Company "Anthropometrical Schedules" prepared by Mr. John Gray, B.Sc., Secretary to the Anthropometrical Committee of the British Association, and also a "Book of Instructions for Taking Anthropometrical Measurements" by the same author.

DONATIONS AND BEQUESTS.—Mr. William Richardson of Kingston-upon-Hull has bequeathed £2000 to the Hull Royal Infirmary, £1500 to the Hull and Sculcoats Dispensary, and £1000 to the Victoria Hospital for Poor Sick Children, Kingston-upon-Hull.—The Infants' Hospital, Vincent-square, Westminster, has received through the ladies' committee a donation of £500 from Mrs. Heron-Allen for the endowment of a cot.—Mr. Henry Finlay has given by will, among other bequests, £500 each to the Poplar Hospital; the Home for Incurables, Putney; the British Home for Incurables, Streatham; the Fever Hospital, Liverpool-road, N.; the Royal Sea Bathing Infirmary, Margate; the North London Hospital, Holloway-road; the Earlswood Asylum for Idiots; St. John's Hospital for Diseases of the Skin, Leicester-square; the National Orthopædic Hospital, Great Portland-street; the Hospital for Diseases of the Throat, Golden-square; the National Hospital for the Paralysed and Epileptic, Bloomsbury; the Asylum for Deaf and Dumb Children, Old Kent-road and Margate; the Hospital for Sick Children, Great Ormond-street; the Cancer Hospital, Brompton; the London Hospital; Guy's Hospital; St. Thomas's Hospital; and the Consumption Hospital, Victoria Park, E.

BOOKS, ETC., RECEIVED.

FISCHER, GUSTAV, Jena.

Plasma und Zelle. Erste Abteilung. Allgemeine Anatomie der lebendigen Masse. Bearbeitet von Prof. Dr. Martin Heidenhain in Tübingen. Erste Lieferung: Die Grundlagen der mikroskopischen Anatomie die Kerne, die Centren und die Granulalehre. (Part 14 of "Handbuch der Anatomie des Menschen," edited by Prof. Dr. Karl von Bardeleben.) Price to subscribers, M.16; to non-subscribers, M.20.

Handbuch der Technik und Methodik der Immunitätsforschung Herausgegeben von Prof. Dr. R. Kraus in Wien und Dr. C. Levaditi in Paris. Erster Band. Erste Lieferung. Price M. 15.

FROWDE, HENRY, Oxford University Press, London, New York, and Toronto.

The World's Classics. Price 1s. each net. CXXX. and CXXXI. Don Quixote. By Miguel de Cervantes Saavedra. Translated by Charles Jervas. Edited, with Notes and an Introduction by James Fitzmaurice-Kelly. In two volumes.—CXXXVI. Butler's Analogy of Religion, Natural and Revealed, to the Constitution and Course of Nature. Edited by the Right Hon. W. E. Gladstone.—CXLII. The Journal of a Voyage to Lisbon. By Henry Fielding. Edited, with Introduction and Notes, by Austin Dobson, Hon. LL.D. Edin.—CXLV. The Works of Ruskin. Sesame and Lilies. The Ethics of the Dust.

OWEN, A., AND CO., 28, Regent-street, London, W.

Matter and Intellect: A Reconciliation of Science and the Bible. By Andrew Allan. Price 5s.

REID, ANDREW, AND CO., LIMITED, Newcastle-upon-Tyne.

University of Durham College of Medicine, Newcastle-upon-Tyne Calendar for the Year 1907-08. Price not stated.

RICHARDS, E. GRANT, 7, Carlton-street, London.

The Birds of the British Islands. By Charles Stonham, C.M.G., F.R.C.S., F.Z.S. With Illustrations by Lilian M. Medland. In 20 parts. Part VII. Price 7s. 6d. net.

ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH, Sixty-Sixth Street and Avenue A, New York, U.S.A.

Studies from the Rockefeller Institute for Medical Research. Reprints. Volume VI. 1907. Price not stated.

SAMPSON, LOW, MARSTON, AND CO., London.

On Stammering, Cleft-palate Speech, Lisping. By Mrs. Emil Behnke. Price 1s. net.

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION. (Secretary, Dr. WILLIAM D. HAGGARD, Nashville, Tennessee, U.S.A.)

Transactions of the Southern Surgical and Gynecological Association. Volume XIX. Nineteenth Session, held at Baltimore, Maryland, December 11th, 12th, and 13th, 1906. Edited by W. D. Haggard, M.D. Price not stated.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

DAVIDSON, GEORGE EDWARD, M.B., B.C. Cantab., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Shere District of the county of Surrey.

DERRY, BARTHOLOMEW GIDLEY, L.R.C.P. Lond., M.R.C.S., has been re-apppointed Medical Officer of Health for Bodmin Urban District.

DE SYLVA, E. M. J., L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Scalloway District of the county of Shetland.

FOLEY, CORNELIUS, L.R.C.P. & S., L.M. Irel., has been appointed District Medical Officer by the Ross (Herefordshire) Board of Guardians.

GRANDAGE, WILLIAM B., M.B., B.C. Cantab., M.R.C.S., L.R.C.P. Lond., has been appointed Assistant Resident Medical Officer to Queen Charlotte's Lying-in Hospital.

HARVEY, FRANK, M.R.C.S., L.S.A., has been appointed District Medical Officer by the St. Columb Major (Cornwall) Board of Guardians.

HENDERSON, G., M.D. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Coldstream District of the county of Berwick.

IMRIE, G. J., M.B., M.S. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Levenwick District of the county of Shetland.

LAVERS, NORMAN, M.D. Brux., M.R.C.S., L.R.C.P. Lond., has been appointed Physician Superintendent of Bailbrook House, Bath.

RICHARDS, JOHN BARROW OSBORNE, L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Medical Officer of Health for the Wadebridge (Cornwall) Urban District.

SHARP, P. J., M.B., M.S. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Ollaberry District of the county of Shetland.

SINGER, H. DOUGLAS, M.D. Lond., M.R.C.P. Lond., has been appointed Director of the Psychopathic Institute of the State of Illinois in the Eastern Hospital for the Insane, Illinois, U.S.A.

SKINNER, D., L.R.C.P. & S. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Lauder District of the county of Berwick.

STEWART, G. N., M.B., M.S. Edin., D.P.H. Cantab., Professor of Physiology in the University of Chicago, has been appointed Director of the Laboratory of Experimental Medicine, Western Reserve University, Cleveland, U.S.A.

TEMPLETON, WILLIAM, M.B., Ch.B. Glasg., has been appointed Extra Anæsthetist to the Glasgow Samaritan Hospital for Women.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BIRKENHEAD BOROUGH HOSPITAL.—Junior Resident House Surgeon. Salary £80 and fees.

BIRMINGHAM GENERAL HOSPITAL.—Two Receiving-room Officers. Salary £150 per annum.

BRENTFORD UNION WORKHOUSE AND SCHOOLS, Isleworth, W.—Second Assistant Medical Officer, unmarried. Salary £125 per annum, with lunch and tea.

BRIGHTON, ROYAL ALEXANDRA HOSPITAL FOR SICK CHILDREN, Dyke-road.—House Surgeon. Salary at rate of £80 a year, with board, lodging and washing.

BUXTON, DERBYSHIRE DEVONSHIRE HOSPITAL.—Assistant House Surgeon. Salary £70 per annum, with apartments, board, and laundry.

CAMBERWELL HOUSE ASYLUM, S.E.—Second Assistant Medical Officer. Salary £150 per annum, rising to £200, with board, apartments, and laundry.

CENTRAL LONDON OPHTHALMIC HOSPITAL, Gray's Inn-road, W.C.—House Surgeon. Salary at rate of £50 per annum, with board and residence.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Pathologist. Salary 100 guineas per annum. Also Two House Physicians for six months. Salary at rate of £50 per annum, with board, washing, and residence.

CROYDON GENERAL HOSPITAL.—Senior and Junior House Surgeons. Salary of former £105, and of latter £60, with board, laundry, and residence in each case.

DORCHESTER DORSET COUNTY HOSPITAL.—House Surgeon, unmarried. Salary £100, with board and lodging.

DURHAM COUNTY HOSPITAL.—House Surgeon. Salary £120, with board and lodging.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark Bridge-road, S.E.—Clinical Assistants.

FARRINGDON GENERAL DISPENSARY, 17, Bartlett's Buildings, Holborn Circus, E.C.—Resident Medical Officer. Salary £120 per annum, with apartments, coal, gas, and attendance. Also Honorary Dental Surgeon.

FIFE DISTRICT ASYLUM, Cupar-Fife.—Junior Assistant Medical Officer. Salary £120, with rooms, board, and attendance.

GLOUCESTER, GENERAL INFIRMARY AND THE GLOUCESTERSHIRE EYE INSTITUTION.—Assistant House Surgeoncy for six months. Salary at rate of £30 per annum, with board, residence, and washing.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Resident House Physicians for six months. Honorarium £25.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Surgeon, Assistant Casualty Medical Officer, and House Physician, unmarried, all for six months. Salary £20, with board and residence in the hospital in each case.

HOSPITAL FOR WOMEN, Soho-square, W.—Resident Medical Officer for six months. Salary at rate of £60 per annum.

INFANTS' HOSPITAL, Vincent-square, Westminster.—Honorary Medical Officer to the Nursing Staff.

JERSEY DISPENSARY.—Resident Medical Officer. Salary £120, with furnished quarters and attendance.

LEICESTER INFIRMARY.—House Physician. Salary £100 per annum, with board, lodging, and washing.

LIVERPOOL EYE AND EAR INFIRMARY, Myrtle-street.—House Surgeon. Salary £80 per annum.

LONDON HOSPITAL, Whitechapel, E.—Surgeon Dentist.

MAIDSTONE, KENT COUNTY ASYLUM.—Fourth Assistant Medical Officer, unmarried. Salary £175 per annum, with quarters, attendance, &c.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Park-place, Cheetham Hill-road.—Honorary Surgeon.

MANCHESTER ROYAL INFIRMARY.—Resident Surgical Officer, unmarried. Salary £150 per annum, with board and residence.

MANCHESTER, UNIVERSITY OF.—Senior Demonstrator in Physiology. Salary £150, rising to £200 per annum.

NEWCASTLE-UPON-TYNE, UNIVERSITY OF DURHAM COLLEGE OF MEDICINE.—Demonstrator of Physiology. Salary £200 per annum.

NORWICH CITY ASYLUM, Hellesdon-next-Norwich.—Resident Medical Superintendent. Salary £400 per annum, rising to £600, with furnished residence, fuel, light, rates, washing, &c.

PAISLEY, RICCARTSBAR ASYLUM.—Assistant Resident Medical Officer. Salary £120 per annum, with board and apartments.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Physician for six months. Salary at rate of £50 per annum, with board, residence, and washing.

PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, London, N.—House Surgeon and House Physician. Salaries £75 per annum each. Also Junior House Surgeon and Junior House Physician. Salaries £40 per annum each. With residence, board, and laundry in each case; all for six months.

READING, ROYAL BERKSHIRE HOSPITAL.—Assistant House Surgeon for six months Salary at rate of £60 per annum, with board, lodging, and washing.

ROYAL DENTAL HOSPITAL, Leicester-square.—Morning House Anæsthetist. Honorarium £50 per annum.

ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C.—Senior House Surgeon. Salary at rate of £100 a year, with board and residence.

ROYAL NATIONAL ORTHOPÆDIC HOSPITAL, W.—Honorary Dental Surgeon. Also Honorary Assistant Anæsthetist.

ST. MARYLEBONE, METROPOLITAN BOROUGH OF.—Medical Officer of Health. Salary £600 per annum.

SALFORD ROYAL HOSPITAL.—Junior House Surgeon for six months. Salary at rate of £50 per annum, with board and residence.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone-road, N.W.—Clinical Assistants.

SEAMEN'S HOSPITAL SOCIETY, Greenwich, S.E.—For DREADNOUGHT HOSPITAL: Two House Physicians and Two House Surgeons for six months. Salary at rate of £50 per annum, with board, residence, and washing. For BRANCH HOSPITAL, Royal Albert Dock, E.: Senior House Surgeon for six months. Salary at rate of £75 per annum and additional £25 per annum for acting as Registrar, &c., with board, residence, and washing. Also House Surgeon for six months. Salary at rate of £50 per annum, with board, residence, and washing.

SETTLEMENT OF WOMEN WORKERS, CANNING TOWN MEDICAL MISSION HOSPITAL.—Honorary Anæsthetist (female).

SHEFFIELD ROYAL HOSPITAL.—Assistant House Physician, unmarried. Salary £50 per annum, with board, lodging, and washing.

SHEFFIELD UNION HOSPITAL.—Locum Tenens.

TAUNTON, TAUNTON AND SOMERSET HOSPITAL.—Resident Assistant House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and laundry.

TUNBRIDGE WELLS, GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, apartments, gas, firing, and attendance.

WEST LONDON HOSPITAL, Hammersmith-road, W. — Assistant Physician.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Surgeon for six months. Salary £30, with board and lodging.

WORCESTER COUNTY AND CITY ASYLUM.—Third Assistant Medical Officer, unmarried. Salary £140, rising to £160, and all found.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Newcastleton, in the county of Roxburgh, and at Rothwell, in the county of Northampton.

Births, Marriages, and Deaths.

BIRTHS.

LLOYD.—On Sept. 10th, at Park-street West, Luton, Beds., the wife of Francis Seymour Lloyd, M.D. Lond., of a daughter.

NIBLOCK.—On Sept. 12th, at Orton Rigg, Canford Cliffs, Bournemouth, the wife of Major W. J. Niblock, I.M.S., of a son.

MCELWEE.—On Sept. 13th, at Belsize-avenue, London, N.W., the wife of Fleet-Surgeon John McElwee, Royal Navy, of a son.

MARRIAGE.

WILLIAMS—FREEMAN.—On Sept. 11th, at St. Stephen's Church, Lindley, Huddersfield, Alfred Williams, M.D., M.R.C.S., to Kathleen, elder daughter of Colonel and Mrs. C. E. Freeman of Oakwood, Edgerton, Huddersfield.

DEATH.

CROWFOOT.—On Sept. 11th, at Beccles, Suffolk, William Bayly Crowfoot, M.A., M.B., B.C. Cantab., aged 29 years, from appendicitis.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE PULVERMACHER INSTITUTE.

IN the *Daily News* of Thursday, Sept. 12th, appears an editorial paragraph or an advertisement—there is nothing to show which—dealing with the Pulvermacher Institute. It is written, as is usual with puffs of quack appliances, in confidential, sympathetic style and gives a lurid picture of mental depression. After the reader has been brought to a properly anxious and miserable frame of mind he is incidentally told that if any reader of the *Daily News* feels interested in the matter a letter addressed to the superintendent of the Pulvermacher Institute will bring a book by return, and so forth. Now all this is part and parcel of the modern quack system, but what we do object to is the final paragraph which says that "it"—i.e., the Pulvermacher treatment—"is recommended by the highest Medical Hygienic Authorities, including, among many others, Sir Chas. Locock, Physician to our (*sic*) Majesty, and 'The Lancet,' the leading medical journal." This statement we have no hesitation in saying is a deliberate lie inserted with the intent to deceive the public, and it is one of the worst kind of lies in that there is a modicum of truth therein. It is quite true that in the year 1856 we commented favourably upon the modification of the old-fashioned voltaic pile which was invented by Dr. Pulvermacher of Vienna, and it is quite possible that Sir Charles Locock, who has been dead upwards of 30 years, also expressed himself as favourably impressed with it, but the Pulvermacher Institute as at present constituted is simply a quack establishment presided over by a manager who, in December, 1906, was absolutely ignorant of any facts about electricity or its medical application. We interviewed this person at that date and an account of our interview with him will be found in THE LANCET of Dec. 8th of that year. We showed that the institute was a purely quack establishment which exploited electricity and the writings of well-known authorities on medical electricity with a view to gulling the public and posing as being able to cure real or imaginary sexual and other disorders. We again charge the Pulvermacher Institute with deliberately making a false use of our name with the intent to deceive the public, and at the same time we may point out to the proprietors of the *Daily News* that by inserting this advertisement or editorial paragraph, whichever it may be, they are in any case assisting to deceive their fellow creatures and, if the paragraph should be a paid advertisement, they are profiting in pocket by the deception.

SPITTING.

To the Editors of THE LANCET.

SIRS,—Although the by-law prohibiting people from spitting in public places, under a penalty of 40*s.* and costs for each offence, was issued by the London County Council as far back as July, 1903, only one delinquent, to my knowledge, has been convicted and fined, and even he would no doubt have escaped punishment had he not aggravated the situation by the use of obscene language. In my opinion, it is nothing short of scandalous that those who persistently and defiantly indulge in the filthy, disgusting, and, above all, *dangerous* habit of spitting in public buildings, carriages, &c., should go unpunished, and their perfect immunity from interference by the London County Council themselves, railway officials, and the like, only shows what an utter farce the by-law against spitting actually is. I have repeatedly communicated direct with the London County Council on this important matter, and even gone so far as to offer them my services in getting notices affixed where they are needed, and to otherwise assist them in suppressing this abominable public nuisance, but have received no support or encouragement whatever. I have also made suggestions to railway and omnibus companies in connexion with this subject, but they have done nothing beyond acknowledging my letters, nor do they seem to care one iota whether the floors of their vehicles are covered with expectorations or not, and this despite the fact that the by-law against spitting is included in their schedules. If an important statute—such as the one in question—is drawn up for the general good of the community and in the interests of the public health, it should be enforced with callous austerity, otherwise its enactment amounts to nothing more than a mockery and can only bring ridicule and contempt upon those who are responsible for it.

I am, Sirs, yours faithfully,

OSCAR MOUAT BALTHASAR.

South Hampstead, N.W., Sept. 11th, 1907.

"ELASTES" FOR AUTOCARS.

To the Editors of THE LANCET.

SIRS,—Probably some of the readers of THE LANCET who use autocars will be interested to hear my experience of "Elastes" filling for tyres. So far it is favourable. As regards comfort and freedom from vibration "Elastes" equals air as a filling for tyres. It entirely does away with the various troubles and delays incidental to pneumatics as ordinarily used. No change in wheels or rims is necessary, but the "Elastes" Co.

only fill new inner tubes and new covers. Cost is rather an important item, but the life of the covers is much greater with "Elastes" than when air filled. Further, when an outer cover is worn out the inner tube and "Elastes" filling can be used again. The increase of weight is considerable. My car is of seven horse-power, driving tyres 700 by 85 mm., weight of each wheel 56 pounds—this includes the brake drum. I have no financial or other interest in the "Elastes" Co. Any further information that I can give is at the service of your readers.

I am, Sirs, yours faithfully,

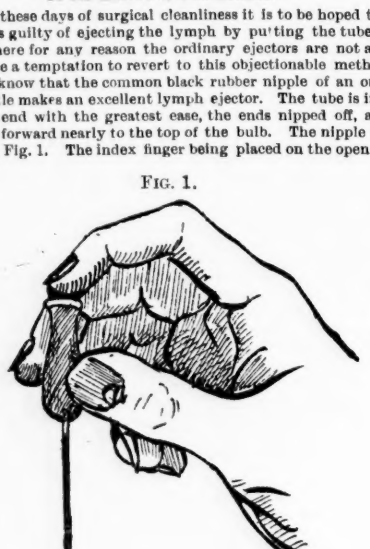
Roche, Cornwall, Sept. 7th, 1907. C. E. ABBOTT, M.R.C.S. Eng.

A HINT TO PUBLIC VACCINATORS.

To the Editors of THE LANCET.

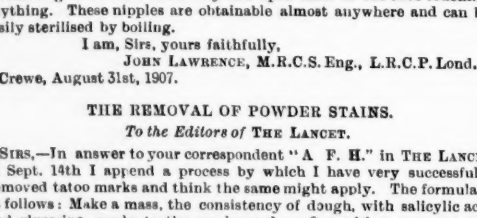
SIRS,—In these days of surgical cleanliness it is to be hoped that no vaccinator is guilty of ejecting the lymph by putting the tube to his lips, but where for any reason the ordinary ejectors are not at hand there may be a temptation to revert to this objectionable method. It is useful to know that the common black rubber nipple of an ordinary feeding-bottle makes an excellent lymph ejector. The tube is inserted from either end with the greatest ease, the ends nipped off, and the tube pulled forward nearly to the top of the bulb. The nipple is held as shown in Fig. 1. The index finger being placed on the open end, a

FIG. 1.



gentle squeeze by the thumb and second finger will eject the lymph. It is also useful as a tube holder (Fig. 2) to enable the tube to be put

FIG. 2.



down, while the arm and instruments are being prepared, without fear of breaking or contamination by the open ends of the tube touching anything. These nipples are obtainable almost anywhere and can be easily sterilised by boiling.

I am, Sirs, yours faithfully,

JOHN LAWRENCE, M.R.C.S. Eng., L.R.C.P. Lond.

Crewe, August 31st, 1907.

THE REMOVAL OF POWDER STAINS.

To the Editors of THE LANCET.

SIRS,—In answer to your correspondent "A F. H." in THE LANCET of Sept. 14th I append a process by which I have very successfully removed tatoo marks and think the same might apply. The formula is as follows: Make a mass, the consistency of dough, with salicylic acid and glycerine, apply to the marks, and confine with a compress and strips of plaster for from five to seven days. Then remove the layer of epidermis over the marks and apply salicylic acid and glycerine as before. It may be necessary to apply three times, but usually the second application removes the marks.—I am, Sirs, yours faithfully,

Sept. 16th, 1907. W. PEART-THOMAS, M.D. Edin.

EAR PLUGS.

To the Editors of THE LANCET.

SIRS,—I should be very glad to know if any of your readers have ever used or recommended any kind of ear plug for effectually deadening sound at night. I have the misfortune to inherit a tendency to insomnia, which has doubtless been increased by the anxieties of a busy professional life. I have a wholesome dread of all sleeping draughts and am inclined to rely more on absolute quiet at night, though this is becoming increasingly difficult to secure. I have been recommended to try the gutta-percha ear plugs used, I believe, by divers, but they are very uncomfortable and I am afraid of their pressure on the ear-drums. Can any reader inform me if there is a more comfortable article to be obtained and where it may be had? Herbert Spencer is said to have used some apparatus of the kind very frequently.

I am, Sirs, yours faithfully,

Farnham, Sept. 15th, 1907. F. G.

THE LATE DR. J. P. MAGUIRE.

To the Editors of THE LANCET.

SIRS,—Allow me to bring under your notice a distressing case that has occurred in this neighbourhood. In January last Dr. J. P. Maguire was seized with sudden and severe illness and succumbed to an attack of acute Bright's disease. He left a widow and a little boy (aged ten years) quite destitute and I am trying to get together enough money to pay for the widow's training as a midwifery nurse. The little boy we have a prospect of getting settled in a school near Dublin. So far I have only applied locally but the response has been so feeble that I am forced to appeal to a wider public—the charitable members of the profession. The following have already generously subscribed:—

	£	s.	d.
Mr. J. Hanharan, Hollymount			0
Dr. M. Semple, Cong ...	1	1	0
Mr. A. Gill, Westport ...	1	1	0
Dr. F. M. Golding, Headford	1	1	0
Dr. Corcoran, Ballinrobe	1	1	0
Dr. R. Macaulay, Ballina	1	0	0
Dr. T. B. Costello, Tuam	1	0	0
Mr. J. McNulty, Killala...	1	0	0
Surgeon-General C. Joynt, Dublin	0	10	0
Dr. J. Hegarty, Clonbur	0	10	0
Dr. R. B. Mahon, Ballinrobe	3	3	0
Donation from Royal Medical Benevolent Fund	15	0	0
Total	28	9	0

Of this sum £4 have been disbursed for pressing necessities, leaving £24 9s. in hand. If this could be brought up to £50 it would enable us to place the widow in a position to support herself.

I am, Sirs, yours faithfully,

Ballinrobe, Ireland, Sept. 14th. R. B. MAHON.

MISLEADING PRESS CUTTINGS.

To the Editors of THE LANCET.

SIRS,—May we ask you to state that the General Press Cutting Association, Limited, of Lennox House, Norfolk-street, did not supply the misleading cuttings referred to in your note in to-day's issue of THE LANCET? We think it necessary this disclaimer should be made, in view of the fact that a large number of technical and trade papers are on our books.—We are, Sirs, your obedient servants,

THE GENERAL PRESS CUTTING ASSOCIATION, LIMITED.
(H. C. GOODE, Manager.)

Lennox-House, Norfolk-street, London, W.C., Sept. 7th, 1907.

X. Y. Z.—We have recently referred to the subject. During late years the position and emoluments of naval medical officers have been greatly improved, several wise arrangements for the practical efficiency of the Naval Medical Department having been inaugurated by the late Director-General, Sir Henry Norbury. Of course, in such a complex organisation as our Navy it must always be a difficult task to frame every regulation to the complete satisfaction of any one branch of the service, while preserving the relations of the different departments—gunnery, torpedo, engineer, medical, commissariat—in harmonious cooperation.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

METEOROLOGICAL READINGS.

(*Taken daily at 8.30 a.m. by Steward's Instruments.*)

THE LANCET Office, Sept. 19th, 1907.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Sept. 13	30 12	S.W.	...	80	73	55	56	57	Foggy
,, 14	30 14	N.	...	104	66	56	53	57	Overcast
,, 15	30 33	N.	...	96	62	50	50	53	Fine
,, 16	30 43	W.	...	113	69	53	51	56	Overcast
,, 17	30 35	W.	...	105	69	56	57	60	Fine
,, 18	30 44	N.E.	...	91	66	52	53	56	Cloudy
,, 19	30 45	E.	...	99	66	51	53	54	Foggy

During the week marked copies of the following newspapers have been received:—*Bury and Norwich Post and Suffolk Standard, Yorkshire Post, Glasgow Herald, Liverpool Daily Post, Warrington Guardian, Dumfries and Galloway Courier and Herald, Birkenhead and Cheshire Advertiser, Buxton Herald, Morning Leader, Belfast News Letter, Daily Telegraph, Daily Graphic, Daily Chronicle, Tribune, Glasgow Evening Citizen, &c.*

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (23rd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (3 P.M.), St. Mark's (2.30 P.M.).

TUESDAY (24th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (2 P.M., Ophthalmic, 2.15 P.M.), Tottenham (2.30 P.M.).

WEDNESDAY (25th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30). P.M.

THURSDAY (26th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (2.30 P.M.), Tottenham (Gynæcological, 2.30 P.M.).

FRIDAY (27th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.).

SATURDAY (28th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9.30 A.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (23rd).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith road, W.).—2 P.M.: Medical and Surgical Clinics. Mr. Dunn: Diseases of the Eye. 2.30 P.M.: Operations. X Rays.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Dr. H. G. Adamson: Clinique. (Skin.)

TUESDAY (24th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith road, W.).—2 P.M.: Medical and Surgical Clinics. Dr. Ball: Diseases of the Throat, Nose, and Ear. 2.30 P.M.: Operations. X Rays. Dr. Abraham: Diseases of the Skin.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Dr. L. Guthrie: Clinique. (Medical.)

WEDNESDAY (25th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Dr. Ball: Diseases of the Throat, Nose, and Ear. Dr. Saunders: Diseases of Children. 2 P.M.: Medical and Surgical Clinics. Mr. K. Scott: Diseases of the Eye. 2.30 P.M.: Operations. X Rays. Dr. Robinson: Diseases of Women.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. L. Mummery: Clinique. (Surgical.)

THURSDAY (26th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2 P.M.: Medical and Surgical Clinics. Mr. Dunn: Diseases of the Eye. 2.30 P.M.: Operations. X Rays.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. Hutchinson: Clinique. (Surgical.)

FRIDAY (27th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2 P.M.: Medical and Surgical Clinics. Dr. Ball: Diseases of the Throat, Nose, and Ear. 2.30 P.M.: Operations. X Rays. Dr. Abraham: Diseases of the Skin.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. S. Stephenson: Clinique. (Eye.)

SATURDAY (28th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Dr. Ball: Diseases of the Throat, Nose, and Ear. 2 P.M.: Medical and Surgical Clinics. Mr. K. Scott: Diseases of the Eye. 2.30 P.M.: Operations. X Rays. Dr. Robinson: Diseases of Women.

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Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

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MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. I. of 1907, which was completed with the issue of June 29th, and the Title-page to the Volume, were given in THE LANCET of July 6th.

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